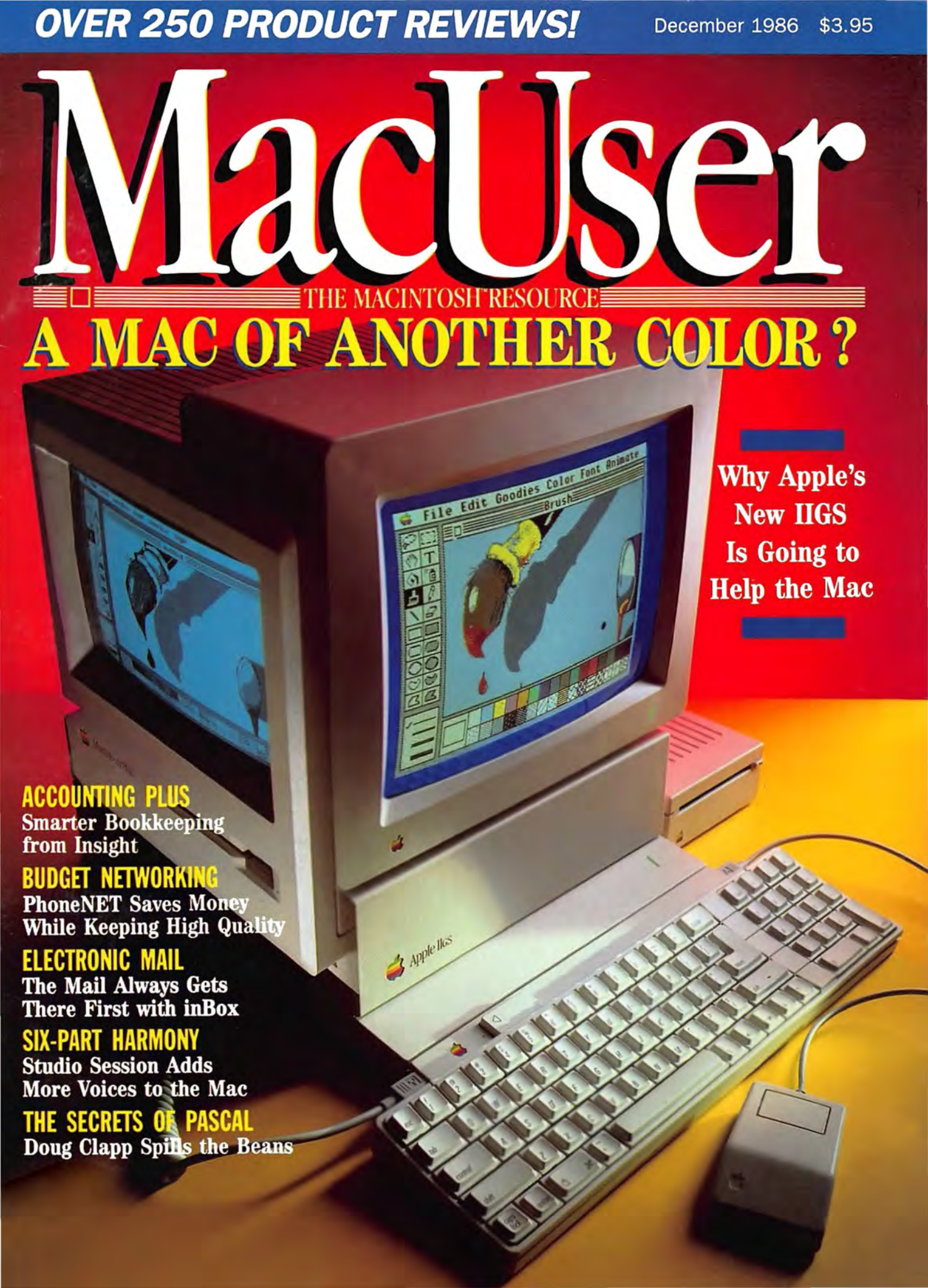
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MacUser

THE MACINTOSH RESOURCE

A MAC OF ANOTHER COLOR?



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Smarter Bookkeeping from Insight

BUDGET NETWORKING
PhoneNET Saves Money While Keeping High Quality

ELECTRONIC MAIL
The Mail Always Gets There First with inBox

SIX-PART HARMONY
Studio Session Adds More Voices to the Mac

THE SECRETS OF PASCAL
Doug Clapp Spills the Beans

NEW!

Turbo Pascal for the Mac: incredibly fast and fully integrated!

Borland's new Turbo Pascal for the Mac™ is so incredibly fast that it can compile 1,420 lines of source code in the 7.1 seconds it took you to read this sentence.

And reading the rest of this page takes about 5 minutes, which is plenty of time for Turbo Pascal for the Mac to compile at least 60,000 lines of source code!



Turbo Pascal for the Mac does both Windows and "Units"

The *separate* compilation of routines offered by Turbo Pascal for the Mac creates modules called "Units"—which can be linked to any Turbo Pascal® program. This "modular pathway" gives you "pieces" which can then be integrated into larger programs. (You build the "pieces" once, and you know they work, so you can use them again without having to recompile.) The immediate benefits of this technique are a more efficient use of memory and a reduction in the memory space needed to run large programs. (What you need to run Turbo Pascal for the Mac is 256K minimum—or half a Fat Mac, 1 drive, and the ability to handle astonishing speed.)

> "The timing of Turbo Pascal for the Mac couldn't be better. The recent success of the Macintosh in business and its continuing momentum in higher education coincide well with the introduction of Turbo Pascal for the Mac. Turbo Pascal is already an industry standard in the IBM-compatible world, and we're very excited to see Borland International's new commitment to provide this and other modestly priced, high-quality software for the Macintosh computer."
>
> **John Sculley, Chairman, Apple Computer, Inc.**

> "Turbo Pascal has become the language of choice at major educational institutions around the country, and more than 400,000 copies of the IBM PC version have been sold. We believe that Turbo Pascal for the Mac is the ideal educational and professional programming tool for the Macintosh."
>
> **Philippe Kahn, President, Borland International**

Turbo Pascal for the Mac is so compatible with Lisa that they should be living together

Not just Lisa®, but also Macintosh Programmers' Workshop Pascal.™ Routines from either one can be compiled and run with only the subtlest changes. Turbo Pascal for the Mac is also compatible with the Hierarchical File System™ of the Macintosh.™ (You can define default volume and folder names for the names used in compiler directives.) Compatibility is also familiarity, and you'll feel right at home with Turbo Pascal for the Mac because it fits neatly into every aspect of the Macintosh environment. The pull-down menus are there, along with dialogue boxes to guide you in making choices and picking options.

Turbo Pascal for the Mac cranks out more than 12,000 lines a minute

Better than *12,000 lines per minute* of compiled source code race out of Turbo Pascal for the Mac. There is definitely "No Waiting." And none of the "stop/start" compiling delays that afflict some of the software programs that we're not mentioning here. (They can take 10 minutes to do what Turbo Pascal for the Mac can do in 10 seconds!)

You don't spend a lot of up-front time learning to use Turbo Pascal for the Mac. It's as *easy* as it is *fast*—which is not to say that it's over-simplified or written for people who have recently learned to walk erect. Instead, it's electronic proof that sophistication and complication don't need to go hand-in-hand.

In all software, there's the Hard Way, the Wrong Way, the Weird Way, the No Way, and the Borland Way. Welcome to the Borland Way!

How to walk and chew gum!

Turbo Pascal for the Mac lets you do up to *8 different things at once.* You can have up to 8 separate programs in memory, work on one, move on; work on another, move back—or duck and weave between all 8 at the same time! And you can do these 8 Easy Pieces *while you run* the compiler. Multiple editing windows allow you to edit, compile, and execute each window individually. With several windows open at the same time, you switch from one open window to another faster than a cat burglar—and never get caught. It's "take the source code and run!"

The 27-Second Guide to Turbo Pascal for the Mac

- Compilation speed of more than 12,000 lines per minute
- "Unit" structure lets you create programs in modular form
- Multiple editing windows—up to 8 at once
- Compilation options include compiling to disk or memory, or compile and run
- No need to switch between programs to compile or run a program
- Streamlined development and debugging
- Compatability with Lisa Pascal™ and Macintosh Programmers' Workshop Pascal
- Compatability with Hierarchical File System of your Mac
- Ability to define default volume and folder names used in compiler directives
- Search and change features in the editor speed up and simplify alteration of routines
- Ability to use all available Macintosh memory without limit
- "Units" included to call all the routines provided by Macintosh Toolbox



Clear your desk, SideKick's here!

SideKick® brings true desktop management and communications to your Mac. Now you can automatically dial phone numbers, log on to bulletin boards, schedule appointments, jot down notes, calculate business expenses—and more—while running all your other Mac software. Once you get SideKick you'll wonder how you ever did without it!

See order form on right-hand page ▶

Introducing Reflex for the Mac, NEW! Borland's remarkable new relational database

Because it is a truly relational database, Reflex for the Mac™ lets you get your various acts together. Lets you connect "A" to "B" to "C," or "Dog" to "Cat" to "Fight." Or whatever links and connections you need to make and need to see. It's a simple spreadsheet-style series of electronic and visual cross-references. There's a clear connection (which you first make by drawing it on-screen) between "Client"—"Matter"—"Attorney"—"Time Sheet"—"Expenses" and "Bill." Or between "Slow Driver in Left-Hand Lane"—"Mile-long Traffic Jam" and "Shot from Behind." It's all relational.

Designed to make the most of your Mac's visual talents, Reflex for the Mac lets you place fields and pictures wherever you want them on the page—and print them that way with your Report Generator.

A funny way to use Reflex for the Mac

Let's say you have to make a lot of speeches and you like to tell jokes, but can't always remember the right one for the right audience at the right time. So you use Reflex for the Mac to set up multiple files that all connect to each other.

Your "Joke" file connects to your "Audience" file, which is split into categories like "Friendly," "Hostile," "Dumb," "Student" or whatever—all of which are interconnected and relational. Reflex for the Mac lets you find the right joke for the right audience, right now.

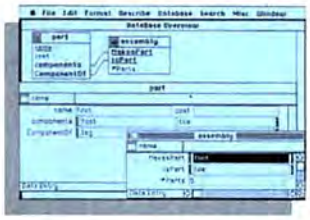
(The serious sides of business include applications like client billing, stock portfolio management, tax planning, and your checkbook.)



After opening the "Overview" window, you draw link lines between databases directly onto your Macintosh screen.



The link lines you draw establish both visual and electronic relationships between your databases.



You can have multiple windows open simultaneously to view all members of a linked set—which are interactive and truly relational.

Mac News for Kangaroos!

Heart of America, one of the U.S. 12-meter contestants in the America's Cup races in Australia, is relying on Reflex for the Mac to help *Bring The Cup Up*. (They're also using Borland's SideKick and Turbo Pascal.) Reflex analyzes 20 different variables like *wind speed, heel angle, backstay load, trim tab angle, rudder angle* and 15 other criteria to show and tell *Heart of America* where to be when—and what to do now to win!



Heart of America's skipper Buddy Melges with Borland International's skipper Philippe Kahn on a testing, training, and analytical run, Santa Cruz, California

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>
> . . . a stunningly wonderful application generator/dbms
> *Esther Dyson, Release 1.0*
>
> Bridges the gap between the pretty programs and the power programs
> *Stewart Alsop, PC Letter*"

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Minimum system requirements:

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358



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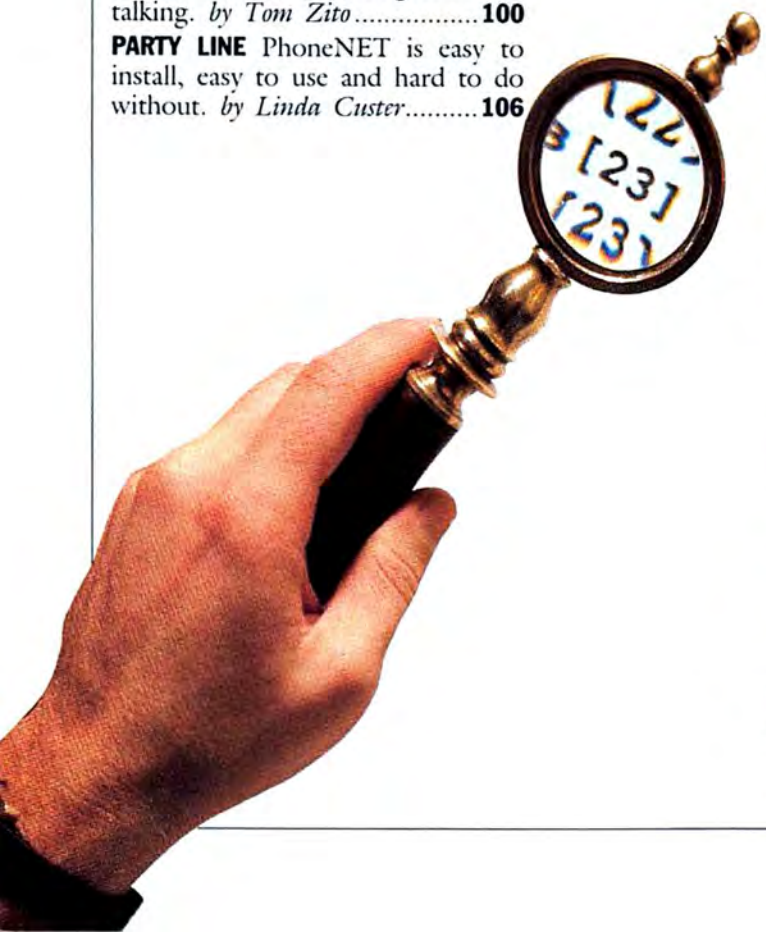
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OverVUE. Best Database of the Year.



Choosing a database manager is no easy task. It's by far the most confusing and fiercely competitive field in Mac software. But now your buying decision is crystal clear, because the editors of MacUser and the readers of MACazine have both selected OverVUE as the Best Database of the Year.

Said MacUser (Jan. 1986), in selecting OverVUE for its **Editors Choice Award:** "OverVUE 2.0 is a deceiving program in that the more you use it, the more you realize what it can do. Power, speed and logical menus make this a dream database."

When MACazine (Jan. 1986) bestowed OverVUE with its **Readers' Choice Award,** they wrote: "We selected OverVUE because of its ease of use, clairvoyance and statistical capabilities. The fact that OverVUE was subsequently selected by our readers as Best Database simply confirms our original assessment: the product is a jewel and the customer support a bonus!"

OverVUE's clean sweep of these two prestigious awards only confirms what everyone else has been saying all along:

Infoworld (July 8, 1985): "...it is Macintosh software done right."

Icon Review (Fall 1985): "OverVUE 2.0 is our favorite database workhorse...it simply offers the best balance of power and ease-of-use available on the market today."

Nibble Mac (Oct. 1985): "OverVUE is not only easy to set up, it's the easiest for data entry. Its tools for entering repetitive data minimizes typing time."

Online Today (electronic version — Nov. 1985): OverVUE 2.0 is a heavy-duty data management tool...It does all the things a good relational database manager should."

OverVUE's features and power make it the ultimate database choice. Clearly, users and editors alike think OverVUE is something special. We think you will, too.

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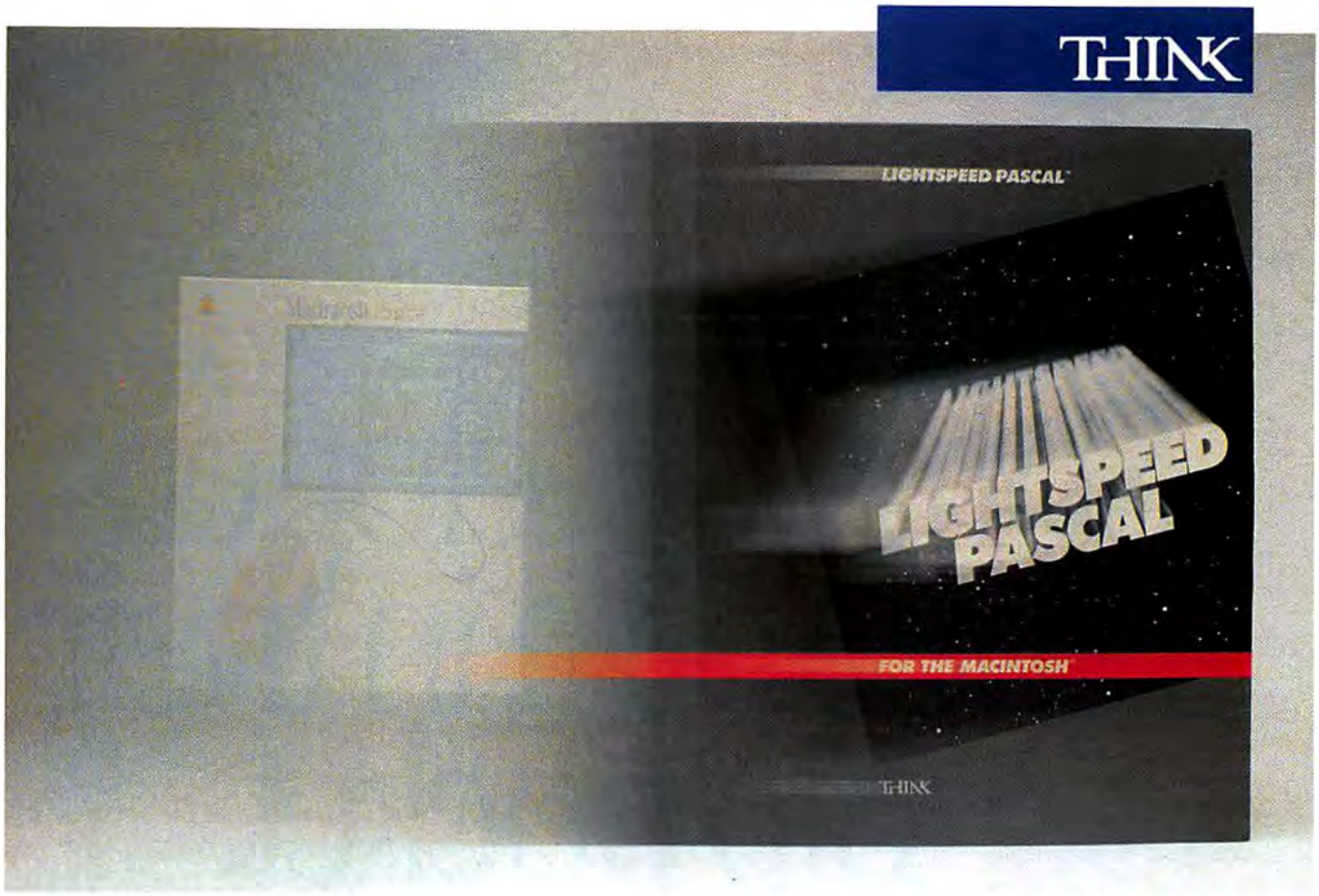
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LIGHTSPEED PASCAL™
THE FUTURE REPEATS ITSELF.

JANUARY 1984. (Cupertino, California.)—Apple introduces the Macintosh.™ At the press conference, six software developers, including Microsoft and Lotus, announce their commitment to the new machine. Among them is THINK Technologies, a start-up developer of advanced systems software.

THINK announces Macintosh Pascal. It is a breakthrough. For the first time, a practical interactive interpreter is available for Pascal. People can now learn to program in a whole new way. They can look inside their program and get immediate feedback. Incorporating the Mac interface in this programming environment, THINK creates a new future for the Macintosh in education.

Writing in The New York Times, Erik Sandberg-Diment says "MacPascal alone might be reason enough for the college-bound science or engineering major to purchase" a Mac. The product becomes a standard in university computer science courses. Users are enthusiastic. But in time they demand even more from THINK.

AUGUST 1986. (Boston, Massachusetts.)—THINK introduces Lightspeed Pascal at MacWorld Expo. It is a breakthrough. It utilizes new compiling and linking technology previously available only with THINK's Lightspeed C. But it goes even further. Like Macintosh Pascal, it provides the same ability to look inside a program, but without the need for an interpreter. It offers blinding speed and the ability to build large programs. The response is overwhelming. In the first two weeks THINK sells thousands.

Lightspeed Pascal marks a turning point in programming the Mac. It has all the features that made Macintosh Pascal a standard. And much more. Now users can create real standalone "double-clickable" applications and desk accessories. THINK creates a new future for Macintosh programmers.

Lightspeed Pascal is priced at $125. It is not copy-protected. The package includes a 600-page manual with extensive index. It provides complete Toolbox/OS support. It is compatible with Macintosh Pascal and Lisa Pascal.

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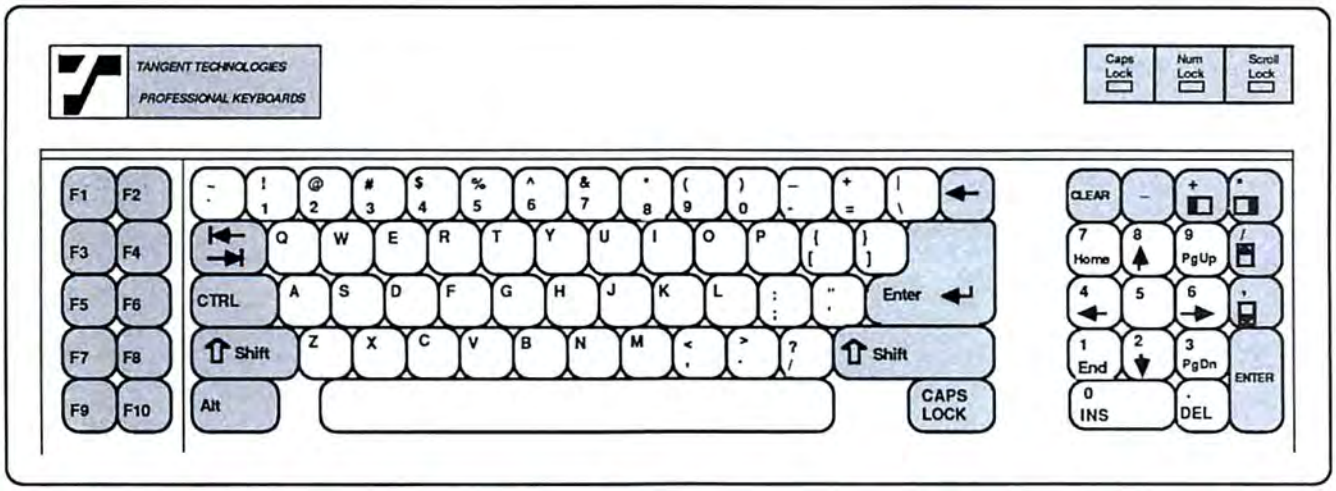
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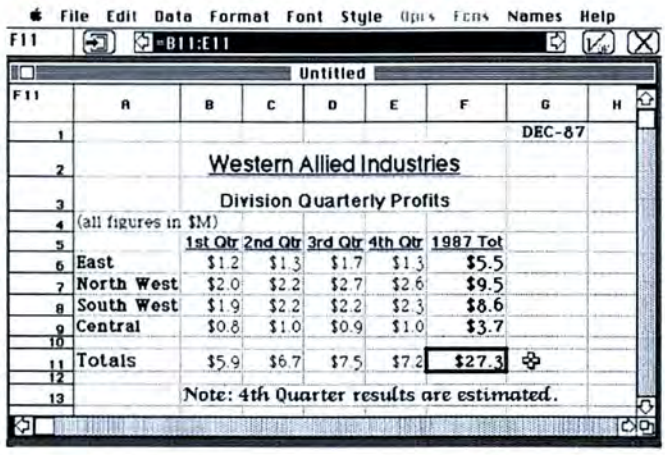
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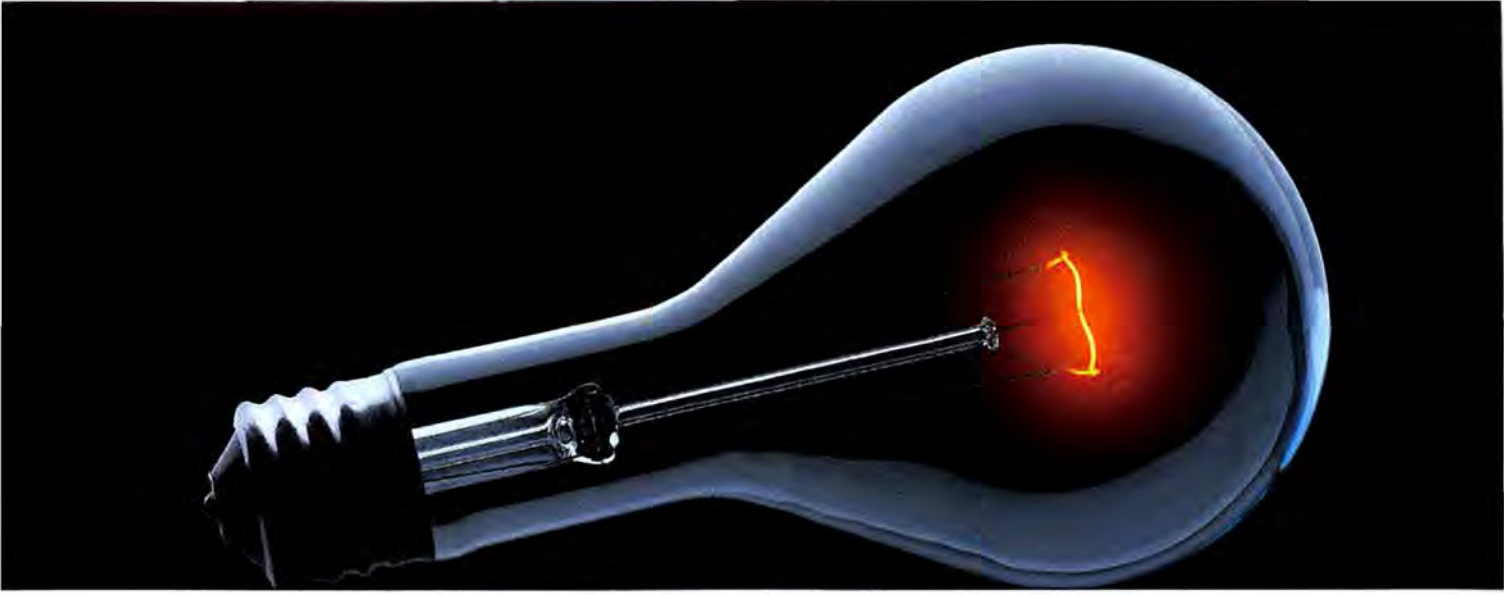
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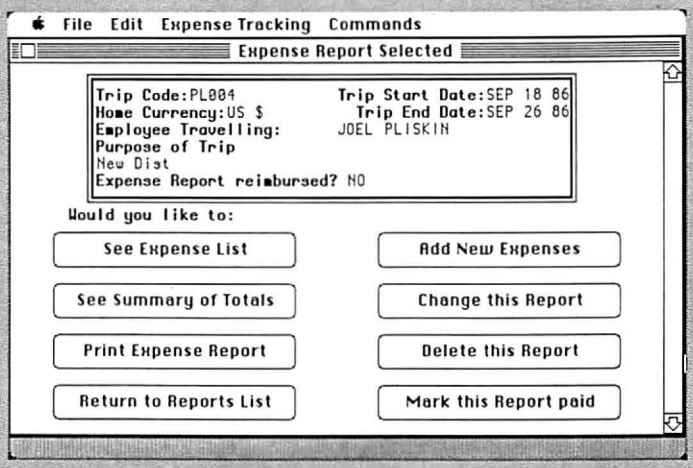
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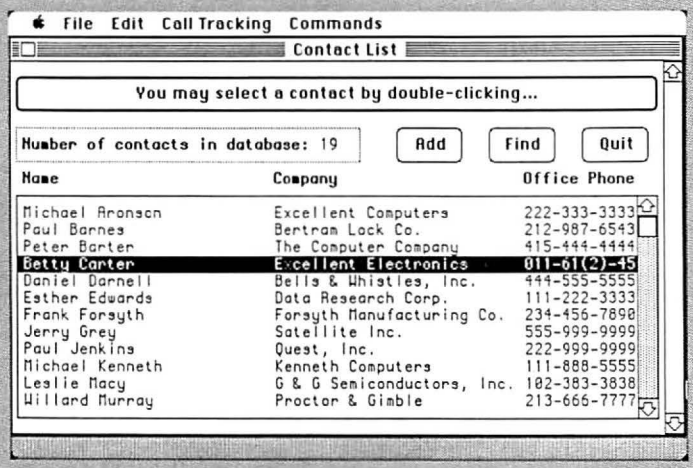
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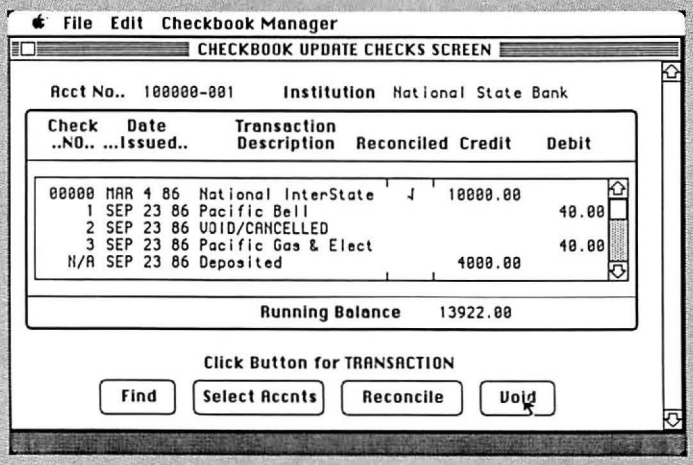
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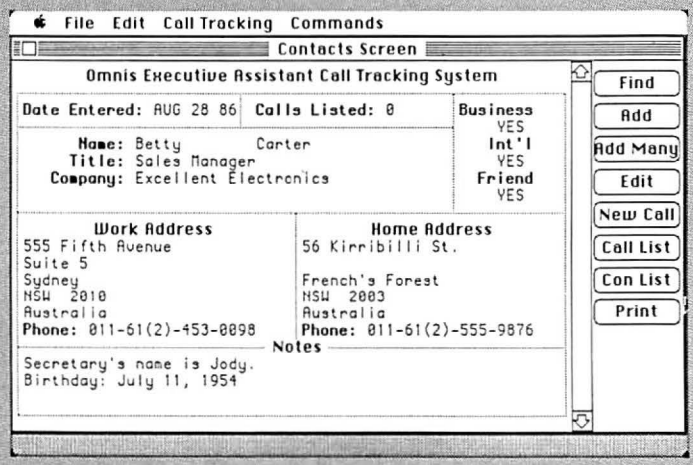
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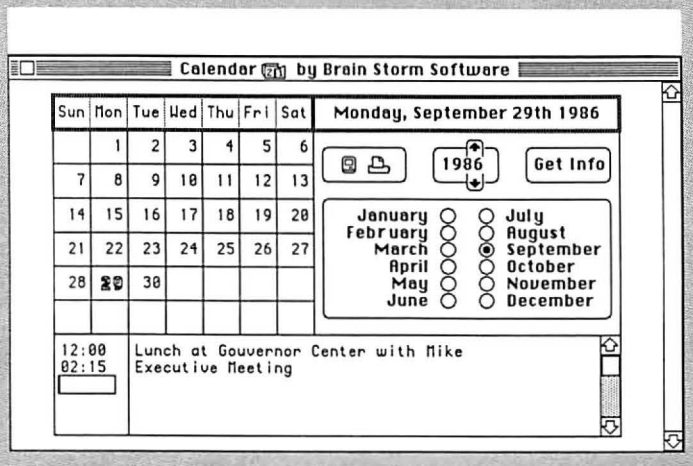
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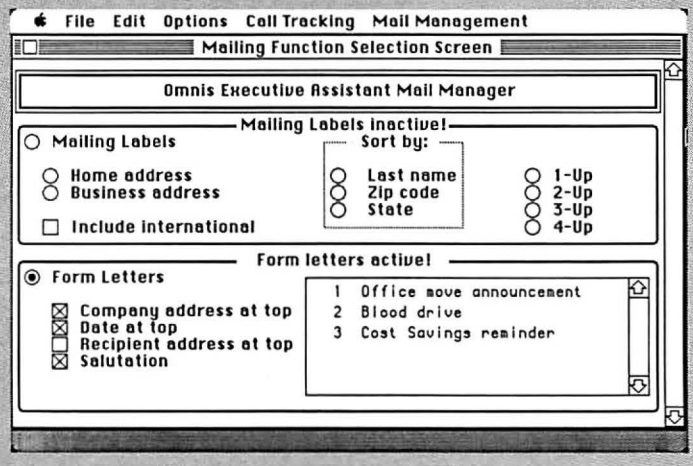
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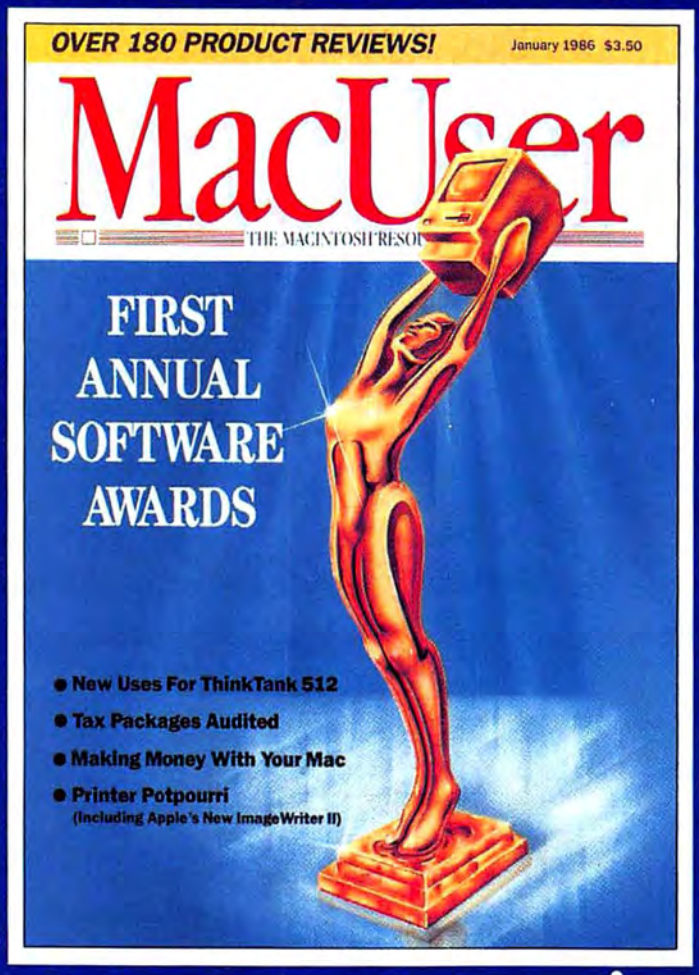
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by Neil L. Shapiro

HOW'S *YOUR* DEALER?

I've been an Apple customer ever since the original Apple II made its debut. I fell in love with that computer, then with the Mac. So, for almost the past ten years, I've had much experience in using Apple products. All in all, I've been pretty happy — with one great exception.

A few days ago I angrily walked out of an Apple dealership, as I have done many times before. This time I have come to a conclusion: I will never return to an Apple dealer to buy anything that I can just as easily mail-order, unless Apple changes many of the policies and procedures associated with their dealer network.

Before I begin listing some of the changes that I suggest, I'd like to say that the dealer problem is not solely Apple's. Many other computers have just as poor and unresponsive a dealer network. But we're talking about Apple here. Apple makes the best micros, and their dealer network should reflect this.

I'd also like to say that this editorial should not be taken as reflecting against all dealers. I have heard, and believe, that there are dealers who make their customers very happy. I feel envious of their customers. So far, in ten years, I have not personally met such a dealer.

BUYING AT LIST

The latest dealer whose store that I stalked out of was one who I've dealt with for the past year. In that year's time I have spent at least $200 a month in his store buying everything from software to peripherals.

That day, I needed a fan. Now, the fan I wanted listed at about $100. The dealer offered to sell it to me at exactly the list price. I thought, seeing as I could get it mail-order for about $65, it should be somewhat less. So, we settled on $85.

While I was there I picked out some blank disks, two programs, paper and enough other goodies to bring the total bill to well over $250. The dealer refused to take a charge card because he had "given me a deal" on the fan.

So, I left him looking at the pile of unsold goods on his counter, went home and telephoned the Mac Connection people; spent my $65 (on a charge card) and had the fan in two days.

Why is it that Apple dealers seem to feel that they have an inalienable right to sell all merchandise at list price?

Later today I plan on buying a new stereo receiver. I want one that is at least 100 watts per channel and I will visit the four audio stores near to me. Each of them will treat me like a king, taking me into huge demo rooms, and will price cut their eyeballs out to get my six hundred or so dollars.

The typical computer dealer will tell you that they simply can't compete with the mail-order places because they do not sell the goods in quantity.



PROTECTIONISM

But the real reason for dealers not going below list price on any item is because they don't have to on the big ticket items. And that's because Apple will not allow people like the Mac Connection, Programs Plus and many other reputable mail-order houses to sell Apple-brand computers.

When Apple first squashed the mail-order computer market it made some sense for that time in history. Apple felt that a local dealer was needed in order to support the typical new customer.

But many of today's Apple computers are the next best thing to appliances to set up and get running. Did you need a dealer to tell you how to hook up your Macintosh? I doubt it.

Well, how about if something goes wrong?

All I can say is that if something goes wrong with your computer approach the resulting call on a dealer in the same way that you would board a New York City IRT subway at 2 AM. For you folks west of the Hudson River, that means to be exceedingly careful and to be sure that your insurance is paid up.

Here's the kind of support that I have received from dealers in the past few years:

One dealer attempted to charge me $120 in labor for running a RAM test because it took 3 hours. (Of course, it was just the machine doing the work; you start the test, go away and come back at least 3 hours later to check the results on the screen.) I explained to him I knew how to run a RAM test myself and that I also knew where the Department of Consumer Affairs was located. Scratch one dealer.

Another dealer replaced a pad in my Apple II disk drive and did an alignment procedure. Total cost of that was $196. Screaming and threatening finally resulted in the old parts being replaced, the drive being unaligned again, and my paying only $30 for an "estimate." Left that dealer too.

Yet another dealer once told me that my new Mac Plus should be opened up and cleaned every 6 months because of the way dirt "sticks" in the vents. If I had been stupid enough to take him up on that then every year he would have received $100 from me and I at least would have had a clean Mac. Left that dealer too.

Then there was the time I had with the new modem cable. I had just purchased an Apple modem secondhand from a friend. It came without a cable. So, I went to one dealer who said that they didn't have it in stock. By the sixth dealer I was smelling a rat. Sure enough, the dealer inadvertently revealed that he didn't have cables to sell *separately* in stock. It turned out that if I did not buy my modem from him I was not entitled to purchase a cable. He simply refused to sell me a cable as he had six modems and six cables (packaged separately, each with its own parts number and each listed as a separate retail item).

I realized that all six dealers had probably lied to me. This time I knew I was in the right. I called Apple's New York City office.

I wound up speaking to a person who seemed to be paid to defend the dealer rather than to help the consumer.

This is the kind of dealer support that I have been able to personally find in the New York City—Long Island area. There may, in fact, be one or more decent and honest dealerships somewhere in this region. I only hope that I will someday find them.

Meanwhile, this can't go on.

KAREN STOLPER

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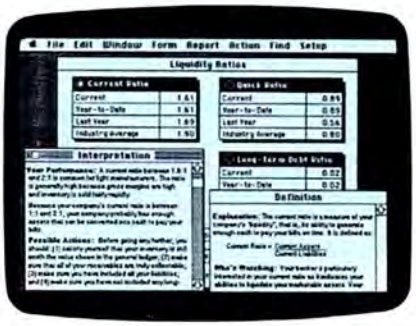
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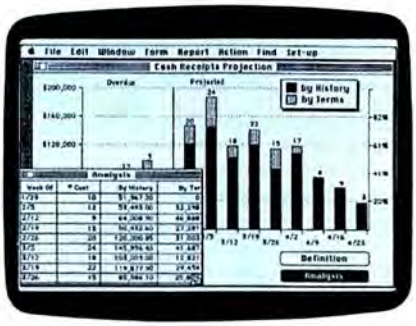


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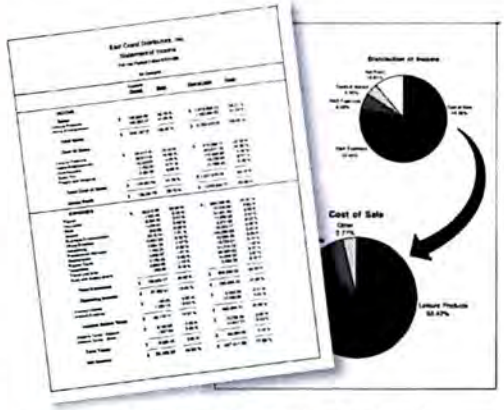
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A PLAN FOR THE FUTURE

First, I think that Apple should allow some of their computer systems to be sold by mail-order houses. I would say that the Macintosh line and the Apple IIc are prime candidates for this.

Being closed systems there is very little need for dealer setup or support. You simply plug them in and go.

(The Apple IIe and IIGS, and any upcoming "slotted" Mac should, perhaps, be embargoed from mail-ordering. These open systems can, indeed, be confusing to set up for the average consumer.) This would immediately have two effects on the dealer network. (Other than having to put up with screams for a few months.)

The first effect would be that dealers would have to actually offer good service if they intended to sell at prices approaching list price.

But the most salubrious effect would be that dealers would suddenly have to compete. They would have to allow prices to realistically reflect the marketplace. There would no longer be the informal price-fixing that there is today.

The next thing that Apple should do is to set up an office within Apple that is dedicated to seeing that the consumer gets a fair shake. Apple has more evangelists than the Mormon Church. There are hardware evangelists, software evangelists, user group evangelists, business evangelists and more. To this crew I would like to see added a Consumer Evangelist.

I would like to have someone at Apple Computer that I, as a customer, could call and complain to. I would also like this person's department to have enough clout that if I was in the right, then my complaint could be rectified.

In other words, the Consumer Evangelist should have the power to revoke a dealership's franchise. Nothing less will give that department enough power to do the job right.

I hope that Apple will, somehow, remold their dealer network in the image of their computer systems — user friendly and reliable.

QUICK KUDOS FOR ZBASIC

I usually leave talking about specific programs for the review pages. But I am so excited and happy about *ZBasic* from Zedcor that I want to let everyone know about this great product.

If you are a BASIC programmer with a Macintosh, I can't recommend *ZBasic* highly enough to you. It will add a whole new facet to the way you enjoy your Mac.

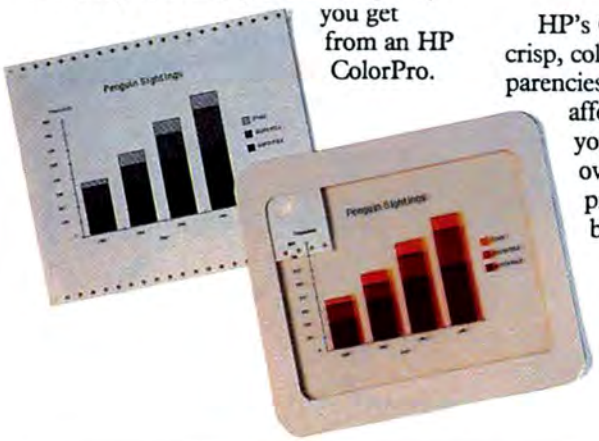


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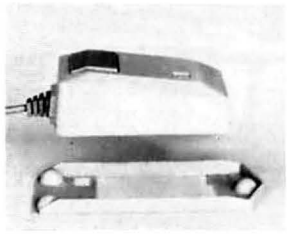


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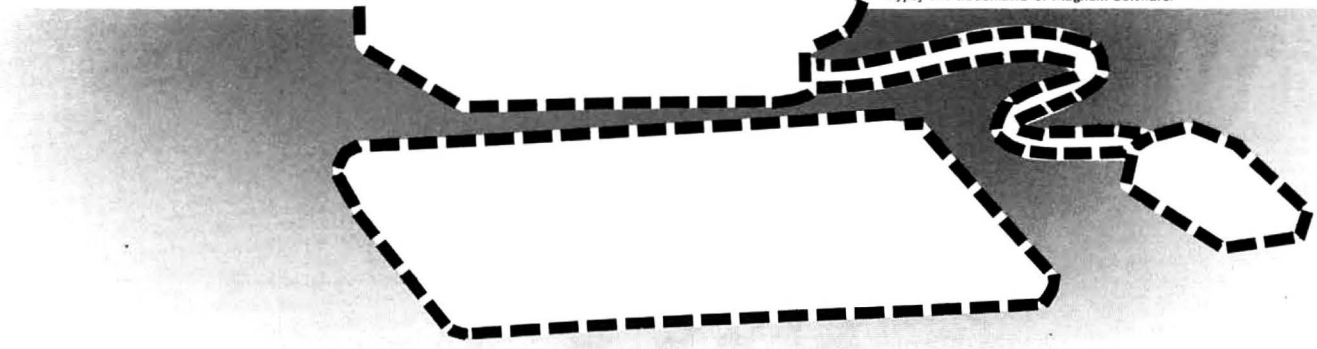


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Steven Bobker

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OPEN SEASON ON DVORAK

John Dvorak's article in the September 1986 issue should be grounds for dismissing him from your magazine.

Here is a well known anti-Macintosh person writing for a well known Macintosh magazine. Many people in the Albany-Berkeley community where Dvorak lives knows that he never uses business applications for the Mac, only games and never uses a hard disk. He uses his IBM. Period. He never uses business applications with a SCSI or other hard disk. And then he tells us what's wrong with the system!! This man is a phony.

Please get him off your magazine. Many Macintosh people are up in arms over his column in your magazine, especially this last one. He is doing a serious discredit to the Macintosh world and especially your magazine.

ROY POSNER
LAFAYETTE, CA

The Devil's Advocate is wandering down the wrong path again in September 1986! His excessively long complaints about the Mac keyboard ignore the central fact demonstrating its popularity. Unlike the IBM PC world where improved keyboards abound and are a necessity for a comfortable machine, no alternate keyboard has appeared for the Mac. The computer market is a free market and the lack of any "improved" keyboards on the market is a good example of the saying "if it ain't broke, don't fix it."

ROBERT BROOME
SLIDELL, LA

You have to have gray hair to remember this, but before PC, every high school had a couple of nerds. These strange individuals usually wore thick glasses. They had a workbench cluttered with wires and vacuum tubes. They had weird personalities. Girls avoided them.

In the late seventies strange things began to happen these guys started making small computer like gadgets. A couple of super nerds started a fruit company that got so successful even Super Blue (home of Corporate Nerds) got into the act. In the way of all nerds, they made these things operate so you had to think like a nerd to make them work. Nerds began to blossom, since they had the key to these things. Many became rich, some became super rich. Hell, some even became magazine columnists.

Then one of the nerds grew up. He thought "hey, let's make a machine that anybody can use without joining the Secret Society of Nerds."

Now, nerds are not dumb. They recognized that their exalted place in society was threatened if anybody could learn to get useful work out of a small computer. They screamed and ranted. They scorned anyone that would use one of these machines. In spite of their best efforts, the machine grew, and as it became more powerful the efforts to kill it reached a real crescendo. One "columnist" devoted almost a whole page to the Keyboard.

Whew! Mac Plus really hit a nerve.

MURRAY SOMERS
STUART, FL

What's (still) wrong with Dvorak? Idiocy or Arrogance? Well, both....

Dump Dvorak! Do we really need this guy? Leave his pompous pen where it belongs: in the IBM crowd.

He says that Apple is into appearance, not substance. Oh really! At least they had the guts to pursue a dream (becoming IBM incompatible in the process). Personally, I'll never forgive IBM for not keeping their technology on the cutting edge.

Am I being defensive about the Mac?

Damn right, and proud of it. I've been fighting for the Mac against IBM for too long. Vee vill nevah surrendah....

John Boy, you're one heck of a negative guy....kind of like Howard Cosell in the sports world. Maybe you guys should do lunch....

ROGER DAVIS
NASHVILLE, TN

John C. Dvorak's own words, "Idiocy sometimes takes the form of arrogance," are particularly appropriate to his Manifesto in the September 1986 issue. While I normally enjoy his ramblings, this tirade serves no useful purpose other than to substantiate his views of idiocy.

It is clear than that his anti-Apple bias has colored his views beyond constructive criticism or even advocacy. At one time I thought Peter A. McWilliams was the most arrogant person who wrote about computers, but now he has competition from Mr. Dvorak.

NICK VAN VALKENBURGH
VIRGINIA BEACH, VA

"HARD" KNOCKS

I have a 512 Mac with an Apple Hard Disk 20. When I buy or "license" a program, I want to put it on my hard disk. And I want the program on my hard disk to behave like an original copy. That's my right — I shouldn't have to insert "key" copies each day, each week, every two weeks, or ever!

I don't pirate software. I don't give copies to other people. And damn it, I expect that when I buy a program, it should work on my equipment.

I am sick and tired of playing games with protection schemes, when all I want is to get the program on my hard disk. I've bought three programs to transfer programs from floppies to hard disks. It's insane!

I've reached the point where I am willing to buy less powerful programs, if the owners would simply let me put them on my hard disk and use them the way I'm entitled.

HUBERT M. SNIDER
WESTPORT, CT

LET'S TALK

You have a truly fine magazine. Why, though does the Maxell advertisement on the outside back cover feature equipment which clearly, is non-Mac compatible? Tisk, Tisk.

KEVIN BILLON
CALGARY, ALBERTA

THIS IS ONLY A TEST

I was appalled by Mr. Wesley's comments, in *MacUser*'s September 1986 issue, concerning the inconsequential nature of benchmarks on hard drives. Certainly performance testing is difficult; it's a complicated matter. Certainly hard drive manufacturers will bias benchmarks so that the test window (the type of tests being run) displays "significant" gains for their product. Obviously a hard drive user might have a system (hardware and software) configuration which leads to less than optimal performance.

The likelihood of a user poorly selecting software and hardware increases if the benchmarks are disregarded entirely. Rather than suggesting such are most properly ignored the West Coast Editor might have beneficially served our community by simply admitting such considerations were beyond the scope of that article.

STEVEN JOHN RACCUGLIA
WOODCLIFF LAKE, NJ

Average disk drive buyers will not understand the meaning or the rationale behind most hard disk benchmark tests. They will simply select whatever appears to be the fastest. That is not the way to buy a hard disk either.


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"MaxSave is the first and only internal recoverable RAM disk system for the Macintosh™ Plus. We combined hardware and software so our users could enjoy the speed without worrying about the crash. If and when the Macintosh bombs, they press reset and recover their data *intact*. Not bad for $119. And of course they get a full two-year warranty.

"So we wanted to pass that information along. After all, it's solutions like MaxSave that have made MacMemory the world's largest Macintosh add-on board manufacturer. And I guess they prove we're good listeners, too."



John Foley
Executive Vice President & Co-Founder

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In future articles we will include single tests, but they will not bias our recommendations. — SB

JUST IN LUCK

In each issue you print various hints, suggestions and useful tips on how to do something better or easier. Would it be possible to compile these for perhaps a year, organize the tips into like catagories and make this compiled list available to your subscribers?

F.W. SCHAEBERLE
KALAMAZOO, MI

Good news! MacUser *has taken our monthly Tip Sheet section and has compiled the over 1,000 tips into a paperback book,* The Power User's Manual, *at a price of $17.95. It will be sold by mail order. Look for the ad in* MacUser. — DG

PUBLISH AND PERISH

I don't know if I represent a large percentage of the Mac community, but I know this: I am really sick of hearing about desktop publishing. If desktop publishing is one thing the Mac does particularly well, fine. But the press seems to have snatched it up like a terrier snatches a rat and is determined to shake every last word out of it that can possibly be written.

All desktop publishing does is encourage people with very little to say to write enough so they can fold one page over, or make it a four-pager and distribute it with mail merge to innocent victims.

Who really needs it? Who is making all these newsletters? More important, who is *reading* them? Please spare us any more on desktop publishing.

SUE GELINAS
CULVER CITY, CA

FIRST THE GOOD NEWS

What's good? Your magazine. I've been reading it since I bought my Mac 512 back in February of this year. You've got an interesting, enjoyable magazine that has consistently helped. Congratulations. And keep it up.

What's not good? A recent court order obtained by Apple Computer that prevents discount houses from selling Apple hardware. That sounds like a monopoly to me—not something one would expect from an outfit that's dealing with "the rest of us."

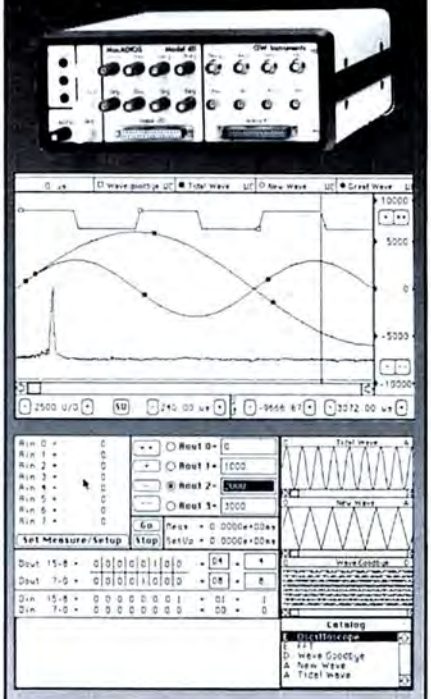
MARSHALL B. DUTTON
VALPARAISO, FL

ALL IN THE WRIST

In September's "New on the Menu" you told us not to open the new single-screw mice for fear of breaking them.

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"The Macintosh legacy has only just begun."

"You know, in the last two years, we've come up with a really impressive family of products for what was supposedly a closed machine."

"Right. And now Apple's coming out with an open architecture machine. The possibilities seem endless."

"I wish we could show people what we're developing right now."

"Now, not all our products are good looking. Take MaxChill™."

"Sure it's funny looking. But it's the best thing on the market for keeping the Macintosh™ cool. A cool Mac is a reliable Mac."

"And the best thing is that you don't even remember it's there. It's internal and it's quiet. You don't see it. You don't hear it."

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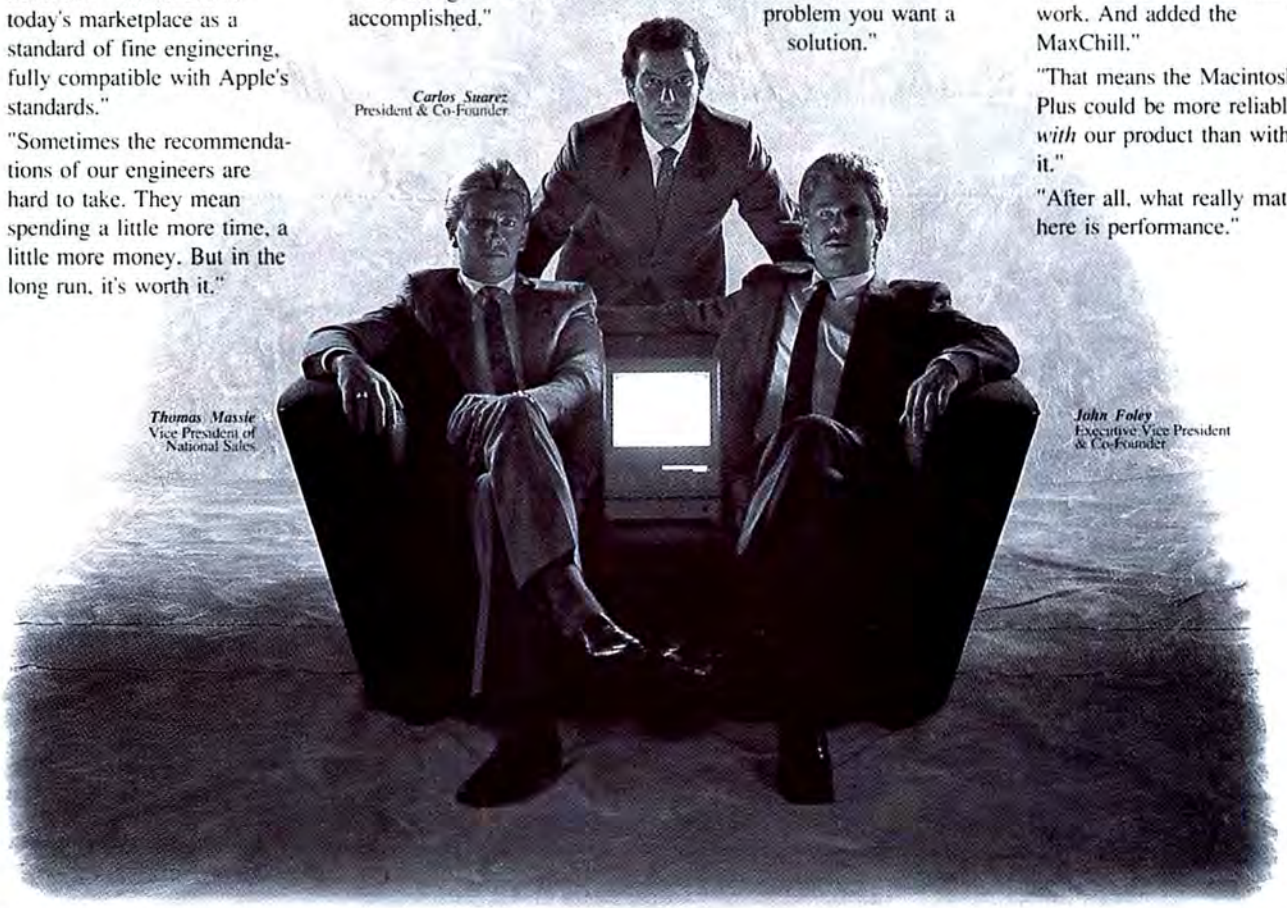
"What it boils down to is that when you have a problem you want a solution."

"When we developed the MaxPlus, we knew we had the best 2Mb Macintosh Plus expansion possible."

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"After all, what really matters here is performance."



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Actually, it's all in the wrist. Don't use the cable end as a hinge; instead pop up the opposite end a bit and then push the bottom toward the cable end. It slides right off with a satisfying snap—presto!

Also, in response to Doug Clapp's comment in "The Macintosh Boundary": *MPW* is indeed a powerful, object-oriented affair. And it did make me swoon. I dropped *TML Pascal*, which I'd been using, as soon as I got my hands on *MPW*. Also, it is baroque-based around a UNIX (shudder) operating system—there are no icons, no folders (directories instead), no *Finder* (it provides its own shell). But as an integrated developer's tool, it leaves *MDS* and *TML Pascal* in the dust. On the other hand, *TML* is not all that different syntactically from *MPW*—there's no reason why Tom Leonard can't integrate it.

JIM ROCHE
OTTAWA, ONTARIO

STRANGE BUT TRUE

"Man, Bytes, Dog" in your September issue is too coincidental. I have a Macintosh *and* a Cairn terrier. And my Cairn terrier (which is slightly older than Apple's Macintosh) is named Macintosh.

Both Macintoshes are user friendly and perform well, just as the article indicated. Macintosh my dog can't help me at work, but Macintosh my computer isn't as affectionate after a long day at the office.

LINDA D. REEVES
NASHVILLE, TN

FRONT LINE DISPATCH

Many people tend to forget or gloss over the actual conditions that exist in the business personal computer world. Right now, there is war, my friends. In the corporate world, there are two definite camps: the Macintosh and the IBM/clones.

Very few publications will "say it like it is," one exception being *MacUser*. Comments like those of Robert Wiggins in the "The Real Computer Office" (August '86), and Michael Wesley's "Out of the Closets and Onto the Mac" (June '86) are good examples of *MacUser*'s dead-level aim. You never see such serious firepower in *Macworld*, whose main monthly editorial is written by (of all people) the same guy who publishes *PC World*. Some editorials have even appeared in both magazines—enough to gag even the most hardened of Mac-militants!

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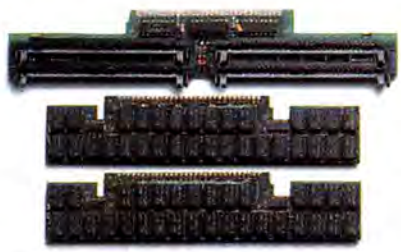
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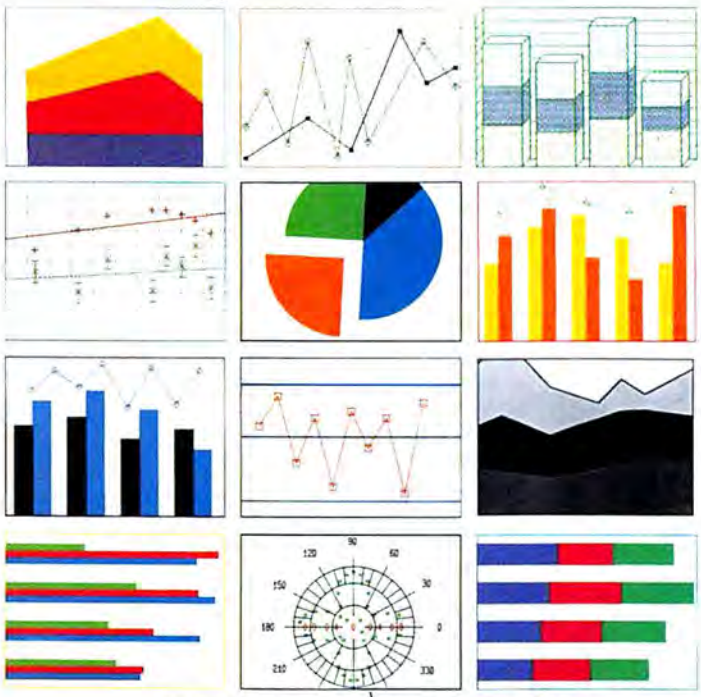
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CAVEAT EMPTOR

I am a proud owner of a Mac and have used it for many purposes. I recently upgraded to the double-sided drive and 512K; this is when my troubles started. I believe that no computer is complete without entertainment. I bought a few games for my Mac, among them *Cyborg* and *MacGammon*. With the upgrade, neither of them would work, so I wrote the manufacturers for help. Videx was supportive and said they would replace the program with one that would work for a small fee. Broderbund, who makes *Cyborg*, said they weren't going to help me, as they had no plans for updating to the Mac Plus. Am I expected to smile and do nothing with a useless program, or will Broderbund be so good as to refund the $49 I paid in March 1985? $49 is a little expensive. I say to anyone buying software, beware of getting stung as I have.

ROBERT F. STANLEY
ARLINGTON, MA

DOLLARS & (NON)SENSE

I would like to point out a problem I have with Monogram, the producer of the popular *Dollars & Sense* program for the Macintosh. They publish a Technical Support telephone number in their documentation (213-215-0529). On several occasions it has taken over half an hour to get a non-busy connection. Then, once I get the connection (I have an auto-redial telephone), it can take over half an hour on hold (for which the customer pays) before a technician responds. Perhaps your readers can put a little pressure on Monogram to rectify this unacceptable situation.

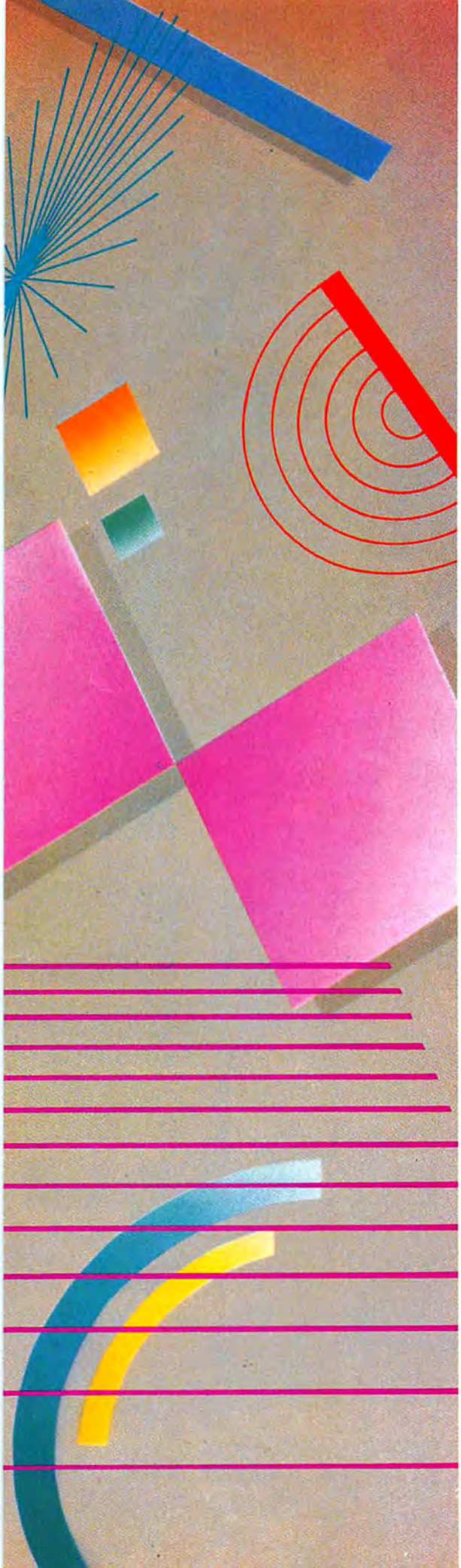
JOHN R. ARCHDEACON
SARATOGA, CA

YOU CALL THIS LIFE?

We would like to comment on John Dvorak's June '86 column, "Of Sexism and Silicon Sinners."

The column did not fully convey the repulsiveness of *Real Life*. When the "game" begins, your character is merely unkempt; as it progresses, degrading experiences increase your slovenly appearance. The contempt for major world religions is shown by clumsy and tasteless "jokes." *Real Life* frequently kills off your character for trivial infractions of its rules, subjecting you to screen after screen of hell and thunder scripture. Finally, the goal of *Real Life* is not discernible: it isn't fun; it isn't educational; it isn't enlightening.

JIM & RHEA GREER
STAMFORD, CT

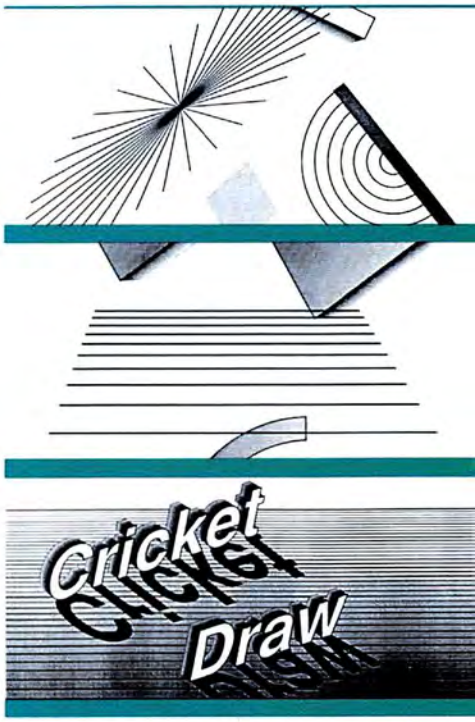


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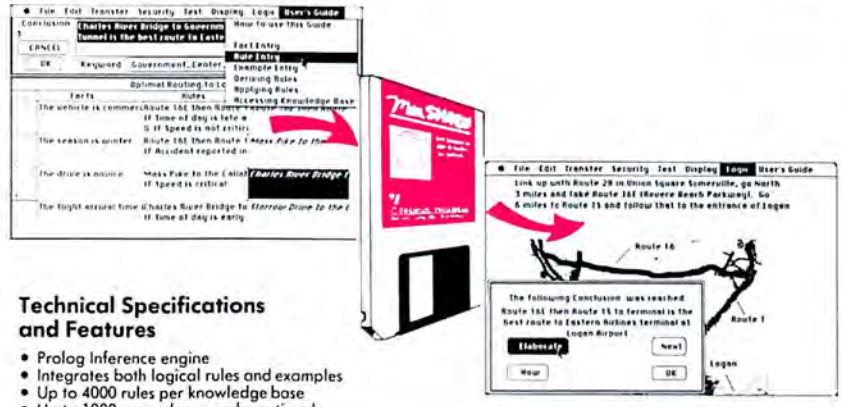
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NEW ON THE MENU

MAC ON THE TUBE

No doubt a lot of you have already seen some of Apple's new television commercials, the first developed for them by BBD&O. There are a grand total of 11 and by far the best of the lot (in this writer's humble opinion) are the Macintosh series of corporate minidramas. At the press luncheon unveiling the new advertising in October, Apple asked film critics Gene Siskel and Roger Ebert (*At the Movies*) to do their stuff. Ebert said the Mac commercials appealed to the fundamental emotions of all business people: fear, insecurity and paranoia. Both critics awarded high points to one commercial for the Mac in particular, "The Redeye," in which two tired but successful businessmen compare notes in First Class. (Couldn't help thinking how this one would look if one of them could have been working away on a lapMac.) For sheer showmanship, however, try to catch the IIGS bit in which a young man standing at a blackboard writes out Einstein's theory of relativity with his right hand and copies Michelangelo with his left. No, it wasn't done with mirrors, but you're close. I predict an award-winner in this bunch at the next Clio (advertising) awards — remember, you read it here first. — *LK*





TAXT FILES

Keeping detailed tax records is almost as much fun as having all your teeth filled, but it can save a tremendous amount of hassle when it comes time to file your taxes or face an audit. Spreadsheets and other programs are useful for maintaining records and tax software can be helpful in preparing forms and filing. But one of the biggest drawbacks with computerized taxes has been the lack of an interface that lets you easily move records from a spreadsheet, data base or accounting program into the tax form.

One company that has been aware of the problem for some time is SoftView, whose *MacInTax* product is one of the best tax preparation programs available on any micro. Sue Morgan of SoftView has tried for some time to interest developers and publishers of number crunching programs to coordinate with her on an interface, with mixed success, so she finally decided to build the necessary interface directly into *MacInTax*. As a result, the 1986 version of *MacInTax* will be able to read text files directly, and be able to import from any spreadsheet, database or accounting program that outputs data as text. Now you can take all the data you have so carefully prepared this past year and drop it right into your tax form. You did carefully prepare your data, didn't you? — *MDW*



RACK 'EM UP

Ordinary disk storage boxes are all very well when you have a lot of disks to file away and forget for awhile, but they're not as convenient for disks that you need to lay your hands on all the time. On the other hand, leaving disks in sight on the desk is just begging for trouble from friends and pets. Presenting the alternative — the MacRack. The MacRack has an angled face with slotted, spongey foam that holds your disks firmly enough to prevent chaos should anyone bump into it, but allows easy one-handed disk removal. It doesn't take up much space — you can set it on top of your extra disk drive, for example. And, best of all, the titles of all the disks (up to 18 of 'em) are clearly visible. MacRack lists for $28.50, and is manufactured by Mason Grant, PO Box 6547, Portsmouth, NH 03801. — *LK*

YOU DIRTY MOUSE! (With apologies to James Cagney)

Given half a chance, computer mice will develop some very nasty habits. They become collectors — of dust, hair, small bits of junk food or almost anything else that gets within reach of their little rolling balls. (You could almost call them Pacmice, but *I* wouldn't go that far — not even in New on the Menu.) While I personally have nothing against a mouse demonstrating a little initiative and taking on a hobby, the ones that become collectors tend to get too wrapped up in gunk to work effectively. Their movements become sluggish. They complain about being hurried from one point to another across the desk. Sometimes their actions are jerky and uncontrolled. In other words, they get to be totally unruly.

To the rescue: a small wonder from a company called Innovations for Computers of Westminster, Ltd. ("ICE," according to their packaging, although I would be at a loss to explain the acronym). Mouse Cleaner 360 is a kit for cleaning computer mice that works extremely well. It comes with a cleaning solution, a velcro covered mouse ball and a velcro pad. You just substitute the cleaning ball for the regular mouse ball, squirt it with a little cleaner and roll the mouse over the pad. The cleaning ball sucks away all the collected garbage that gums up your mouse's rollers. I have tried it and it works wonders. You may not even know that your mouse is dirty until you clean it and observe how much better it works.

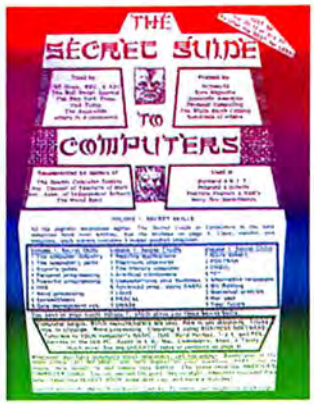
I know it seems unfair to take away your mouse's only hobby, but hey — these guys are supposed to be working, making our lives easier. Mouse Cleaner 360 is $14.95. Available from ICE of Westminster, Ltd., PO Box 1603, Westminster, MD 21157. — *MDW*

RUMOR MANAGER

A very hot new software field is just emerging: precognitive software. This is software that relies on very advanced AI techniques to know what regular users want as or before they enter material. While the supercomputers have had this ability for some time, only recently have micros been able to precognate. The first glimmerings were seen a while back in *OverVUE 2.0*. Now we've seen an early version of the first precognitive word processor. This program may be bought by Apple. The current version is very buggy, often creating text diametrically opposite to what you want. However, the developers are sure they can solve the problems and are currently debating how smart to make the program. . . . Also heard of, but not seen: a precognitive page layout program that more or less guarantees good design if you let it do its thing (it's supposedly a reaction to some of the truly desktop publishing designs being created by ordinary programs) and a tax preparation program (which the IRS is *very* interested in!). . . . the word processor vapor wars will continue well in 1987 as products are being announced faster than they are shipping. Look for a baker's dozen of word processors to be announced by Christmas (including the five on the market). . . . All the major standalone spelling checkers will be converting to DA format in their next versions Super hard disks (50 meg and up) will become much cheaper right after the New Year and will start taking a significant share of the market the quality control problems that have plagued the early versions of the 1333K double-sided drives have been overcome and several Japanese manufacturers have started producing the necessary disks in quantity. Since the drives and disks cost about the same as the current 800K disks and drives, look for the new units to become standards . . . Apple is actively urging game publishers to publish for the IIGS and not the Mac. The only Mac games in 1987 will come from smaller, "maverick" publishers. But there are some really great ones already in beta test. . . . One magazine (not *MacUser*) plans to elevate vaporware (announced but unavailable software) to a legitimate form by establishing a PreReview section. January's Mac will be able to run IBM programs, but the price will be very high. . . . Companies following up on the wild success of the first large, high-resolution screens, will beseige Mac buyers with all sorts of hardware add-on options: screens, amplifiers, data acquisition systems and interfaces to nearly everything imaginable. . . . Flat Macs will replace LaserWriters and big screens as the ultimate Mac status items (at $5000 and up, each).

SO THAT'S WHAT WE ARE

Recently, a very odd book came through the offices of *MacUser*. *The Secret Guide to Computers*, by Russ Walter, is a psuedo-underground everything-under-one-roof computer technology guide reminiscent of Ted Nelson's classic *Computer Lib*. Thumbing through the book revealed a brief description of a typical IBMer and a typical Mac owner: "The IBM PC appeals to people who are efficient, businesslike, conservative; the Mac appeals to people who are inspired, artistic, radical." Sounds like a case of left versus right brain to us. For more information about *The Secret Guide to Computers*, contact Russ Walter at (617) 666-2666. — *DB*



DIALOG BOX OF THE MONTH



Writing the updated Collection "Albums" to disk. Time to sit back and enjoy a book.

BUG OF THE MONTH

The very slick inBox electronic mail system has one very nasty habit. If for any reason the clock in the Mac running the Message Center fails or becomes set to something other than the correct time, inBox will reset the clocks of all Macs on the network as they start up, either at the beginning of the day or after a crash. And it won't drop the slightest hint as to what it's done! If any of your other programs, such as *Smart Alarms*, rely on the clock being set to the correct time, you're in for a shock and possibly some missed appointments.

This bug was discovered and reported by Anthony Bay. We hope that the $25 he'll receive will make up for the appointments he missed on the trail of this bug.

Send your bug reports to Bugsy, c/o *MacUser*, 25 W. 39th St., NYC, NY 10018. Remember to include all the details, such as what *Finder*, what DAs, etc., and exactly how you found it, so we can reproduce the critter.

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Put A Ferrari In Your Mac

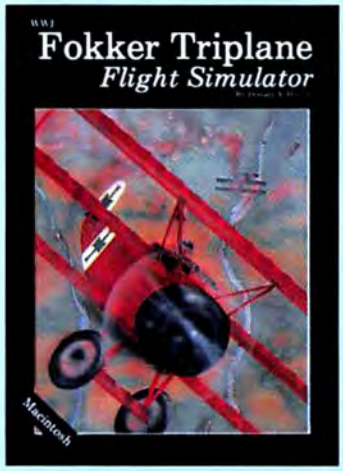


Announcing **Ferrari Grand Prix,** Donald A. Hill, Jr.'s new simulation. Ferrari Grand Prix captures the tense excitement of Formula One Racing. Warning: this simulator is not relaxing.

First you can select a course from many included or design your own race course using Grand Prix's toolkit. Create a track right off the Formula One World Championship circuit, or design one only you can imagine.

Next, you'll drive the course—testing your car, perfecting your brake points, memorizing curves. Adjust gear ratios on your Ferrari to get the perfect mesh of car and course. Check your progress against the "Best Lap" clock. Also, you select how good your two opponents are.

Once you've mastered the course, you're ready for the final test: a Formula One style race against your two formidable opponents. But don't stop there, design a new course, upgrade the competition and tighten your seat belt. Ferrari Grand Prix awaits.



Fokker Triplane Flight Simulator features a "feel-of-flight" never before experienced. It was introduced last year and has received great reviews from all major Macintosh magazines. More important than reviews is the response from its owners • "Terrific game! As a pilot (aircraft and hanglider) it is the best flight simulator program available by far"-BP • "Well designed, well executed. A real challenge. Now pardon me while I fix my goggles and get in the air!"-DS • "This simulation is so realistic I find myself getting dizzy"-SC.

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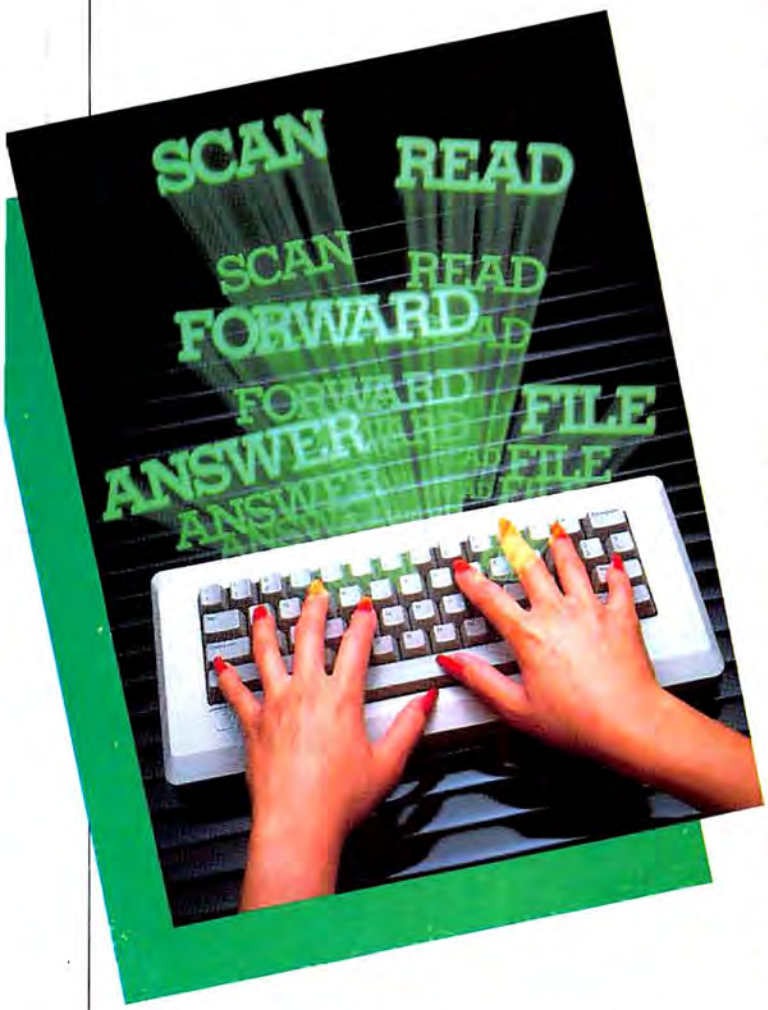
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Ferrari Grand Prix runs on Macintosh 512 and Plus, Fokker Triplane runs on Macintosh 128, 512 and Plus

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WILL THIS BE THE WORD (3.0)?

Microsoft has announced a new version of *Word*. The current version is 1.05. The new version number will be 3.0. Microsoft has chosen to skip 2.0 to emphasize the differences between the old and new product. And they are substantial.

We recently saw a demo of *Word* 3.0. While we can't comment on performance, since we didn't get a chance to beat on the beta version, we were impressed. Microsoft has been listening to the many complaints about version 1.05, and appears to have fixed or improved things in every case. They've also added enough to make this program the most feature-laden word processor yet.

One of the neatest additions is something called "Short Menus." Invoking this feature limits the menu choices severely, to a useful basic subset. A simple menu toggle command brings back each and every feature. Users can toggle between levels as they work. The menus can also be customized, to reflect user preferences.

Also sure to be popular is a preview feature that can show up to two full pages at a time. Margins can be directly set here, so you can see the overall effect of your changes. There's also a magnifying glass cursor that expands anything under it so that it can be read. Unfortunately, it doesn't let you edit in preview mode.

The full list of fixes and features would take up pages, so here are some highlights: built-in spelling checker, built-in hyphenation program; outlining; indexing; easy and intuitive headers and footers; graphics next to text; and style sheets.

Microsoft hopes to have version 3.0 available for upgraders before the end of the year and in the stores in January. The "best guess" price is $395. — *SB*

UPDATES

Do you have the latest versions of your programs? Most programs indicate what version they are when you look in the About . . . choice at the top of the Apple menu. If your version isn't the latest, contact the publisher about possible upgrades. Look for addresses in our Mini-Finder section. A special note on Apple System software: If you have a 512K or larger machine and don't have *Finder* 5.3/*System* 3.2 see your dealer for a free upgrade. If you have them but didn't get new printer drivers and new Control Panel and Chooser DAs, see your dealer at once. You need them! Apple System software upgrades are free at dealers as long as you bring your own disks. Here's our list (as of press time). — *SB*

Acta	1.1	Microphone	1.0
Aztec C	1.06h	Micro Planner	1.1
Back to Basics	1.03	Micro Planner Plus	1.1
BatteryPak	1.23	MORE	1.00A
Click/On Worksheet	1.3	MS BASIC	3.0
ColorChart	1.3	MS Chart	1.00
ConcertWare+	3.1	MS File	1.02
Copy II Hard Disk	6.0	MS Fortran	2.1
Copy II Mac	6.0	MS Word	1.05
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DiskInfo	1.43	MusicWorks	1.1
Dollars & $ense	1.4	myDiskLabeler	2.11
Easy 3D	1.01	Omnis 3	3.10.MAC
Edit	2.0d1	Omnis 3+	3.21
Excel	1.03	OverVUE	2.0d
ExperLISP	1.5	PackIt III	1.2
ExperLogo	1.1	PageMaker	1.2
Factfinder	1.1	PictureBase	1.1
Fedit Plus	1.0.7	Quartet	1.1
FileMaker	1.0	QUED	1.51
FileMaker Plus	2.0	QuickSet	2.0
Finder (128K only)	4.1	Rags to Riches	2.6
Finder (all others)	5.3	ReadySetGo	3.0
FONTastic	2.7	Record Holder	2.1
Fontographer	1.5	Red Ryder	9.4
Gato	1.42	Resource Editor	1.0A1
Hard Disk Utility	1.27	(Resedit)	
Helix	2.0 r11	Resource Editor (Redit)	1.2
InTalk	2.1	Sidekick	1.1
Jazz	1A	Silicon Press	1.1
Just Text	1.0i	Slide Show Magician	1.3
Lightspeed C	1.02	Smartcom II	2.2B
MacDraw	1.9	SpellNow	1.0
MacBase	1.0	Spellswell	1.2d
Mac Disk Catalog II	2.1b	StatView 512+	1.0
MacDraft	1.2	StatWorks	1.2
MacGolf	2.0	System (except 128K)	3.2
MacLabeler	2.2	Switcher	5.1
MacLightning	2.0	Tempo	1.1
MacPaint	1.5	ThinkTank 512	1.3
MacPublisher II	2.7	Thunder!	1.0
MacServe	2.1	ThunderScan	3.2
MacSpell+	1.1	TML Pascal	1.2
MacTerminal	2.0	TMON	2.585
Mac Tools	6.0	Top Desk	1.4
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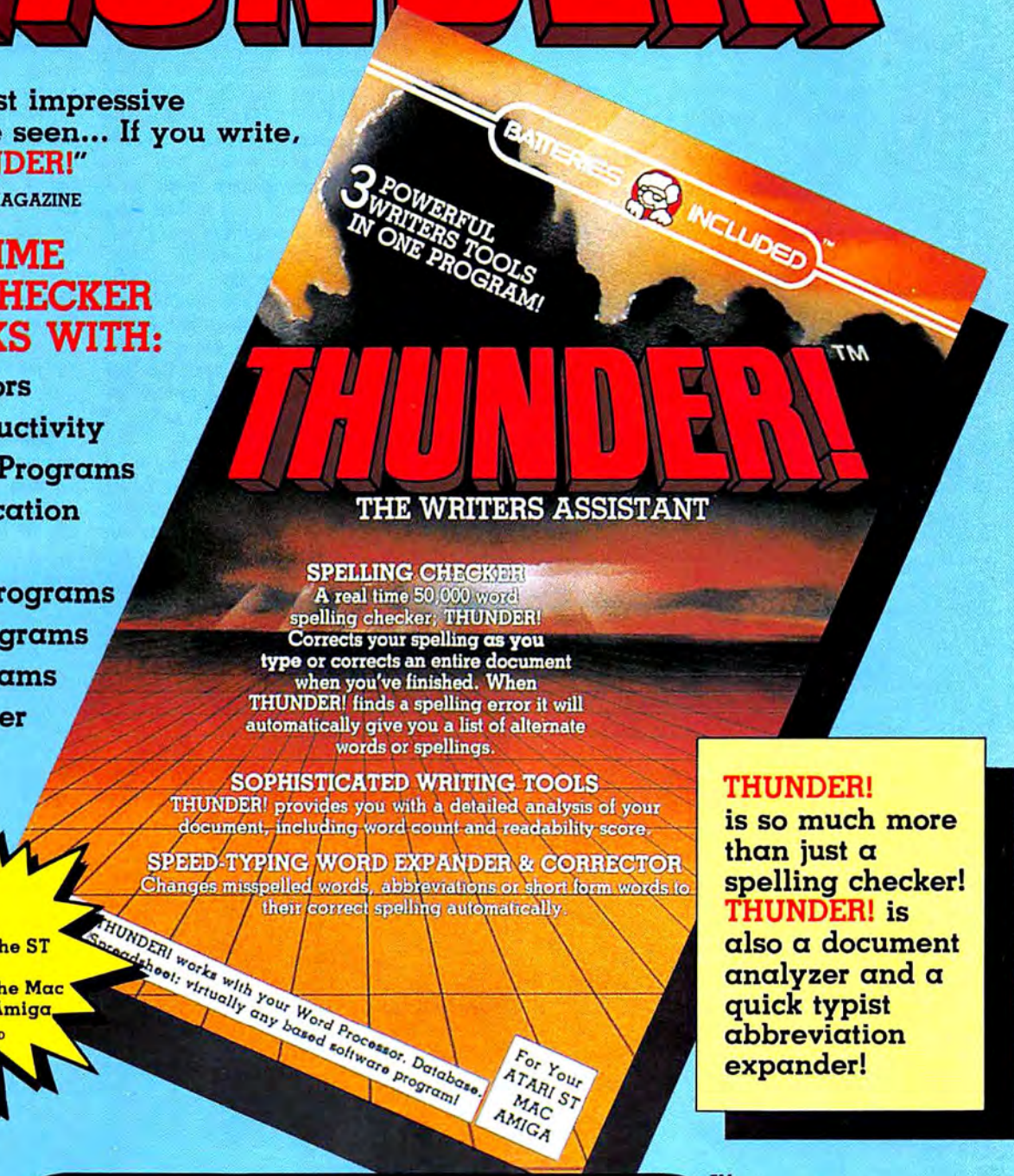
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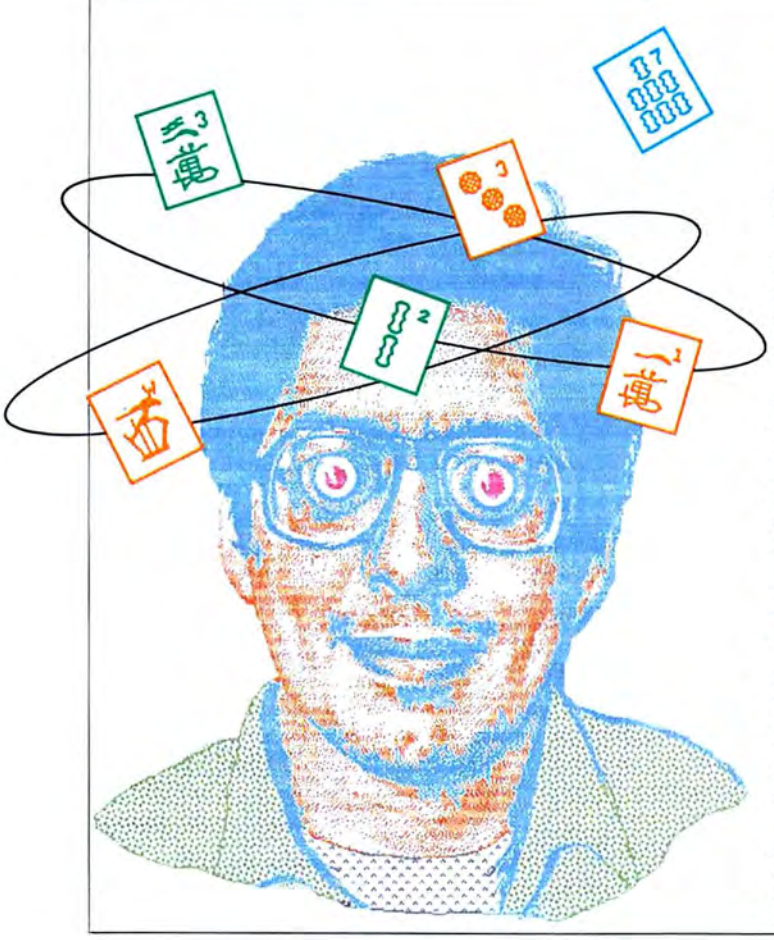
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SHANGHAI'D

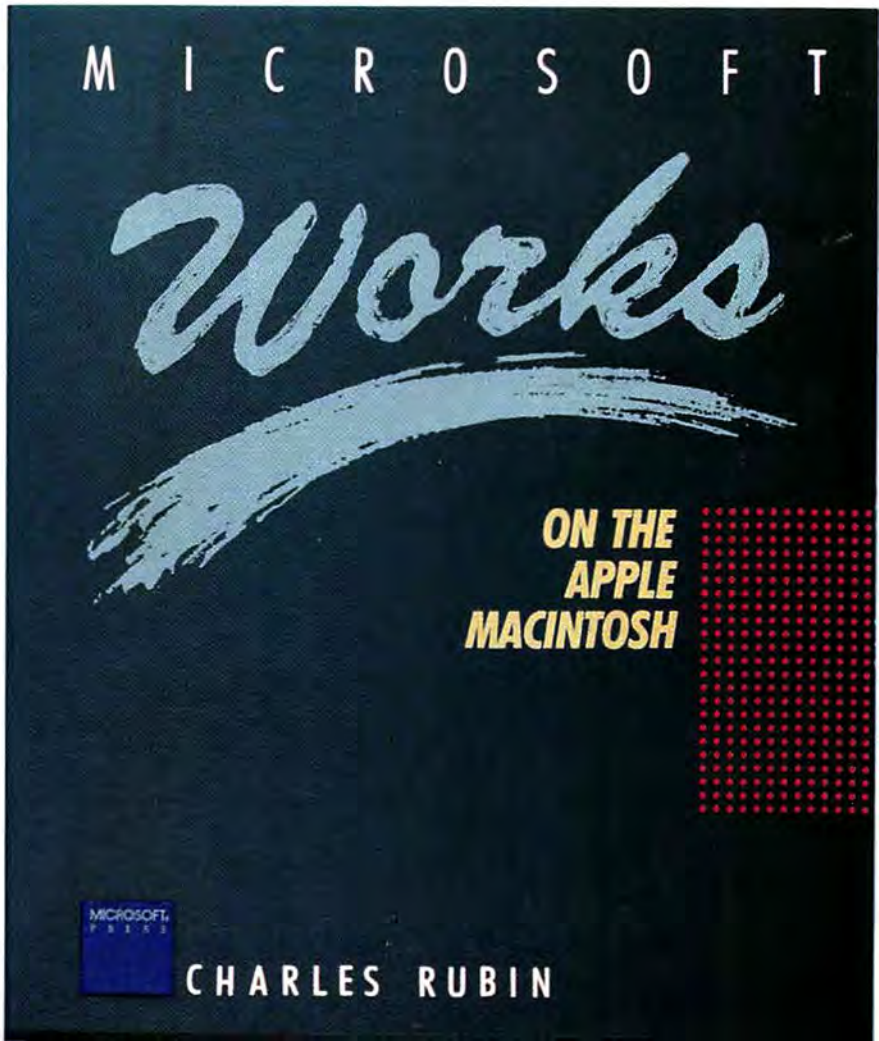
According to reports filtering in from all over the country, there is a serious new threat to corporate productivity and the American work ethic. It is an insidious, addictive game called *Shanghai* from Activision (see *MacUser,* November '86). The game has been known to brainwash good workers and turn them into zombies. People have been known to sit at their Macs "for a quick game of *Shanghai* " and disappear only to surface again 3 days later, completely disoriented. Their eyes blurred, these people often have forgotten their names, addresses, and places of employment. But they can give you a blow-by-blow description of the 73 games of *Shanghai* they played.

Activision, the publisher of *Shanghai,* cannot be faulted for the behavior of these addicts. There are clear warnings in several places that *Shanghai* is addictive, but very few people pay attention to them. Perhaps they really believe they can play just one game of *Shanghai* (poor, deluded souls). Until *Shanghai* is made a class one narcotic by the Food and Drug Administration, office managers everywhere should confiscate all copies of *Shanghai* and keep them under lock and key, to be brought out only when proof can be produced that a person's work is finished. Otherwise, this disease could spread and infect the general population, turning all of America into *Shanghai* junkies. — *MDW*

Editor's Note: Mike Wesley was last seen 3 weeks ago, sneaking into a back room with a Mac and copy of Shanghai. *He has not been heard from since.*

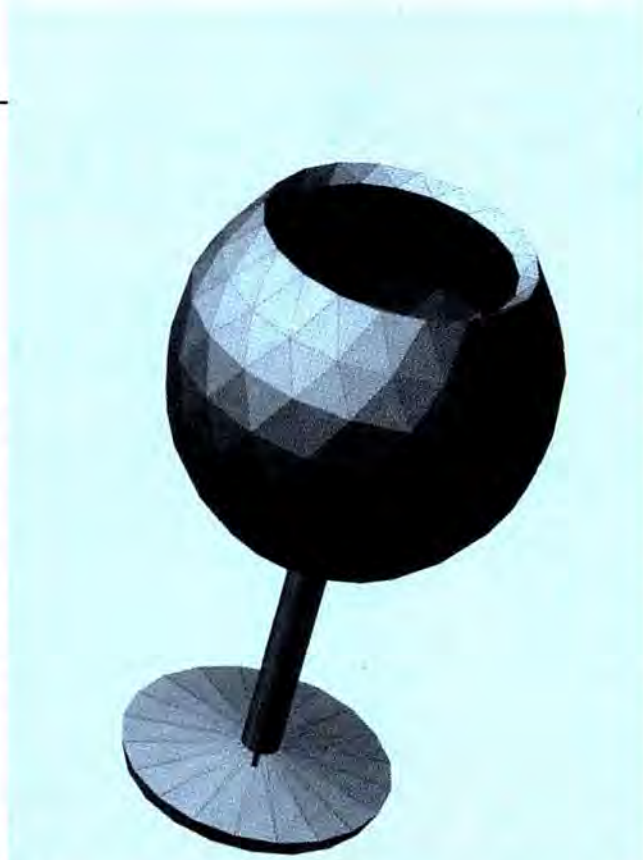
BRAINBOYS

Microsoft Works by Charles Rubin. Find out how Microsoft Works works. $18.95. 352 pages. Softcover.



SHADES OF GRAY

It was destined to happen: programs that did things with PostScript other than place text and graphics together were bound to begin appearing. Two new entries to the three-dimensional graphics software world, *Mac3D* 2.0 (a $30 update for 1.0 and 1.1 owners) and *Pro3D*, offer something that the other guys don't: full PostScript support for gray shading. The results are nothing short of spectacular. *Mac3D* 2.0, by Challenger Software, features six variable light sources, user-definable graphics primitives, geodesic spheres generation, and more. *Pro3D* is a new program by Enabling Technologies, which builds on the intuitive *Easy3D* interface and provides capabilities that will appeal to engineers and designers, such as dimensioning and a new tool, Profiler, which replaces the jigsaw in *Easy3D*, and vastly increases the program's modeling power. *Pro3D* has a list price of $349. Look for reviews of both these products in upcoming issues. — *DB*



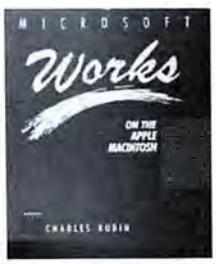
ALL OR NOTHING

Several readers recently wrote in to tell us that they were having problems with either *Finder* 5.3 or *System* 3.2. It turned out that all were suffering from the same software malady. They had upgraded piecemeal and only done a partial job. In several cases, they were using *Finder* 4.1 with the new software because they felt that combination was faster. It may well be faster, but it will cause serious problems. The new Systems software is designed to work as a unit.

And you should be using the latest versions. That means *Finder* 5.3 and *System* 3.2. Be sure that you are not using *System* 3.0. That one will destroy your files.

The new *System* also requires that you use *Font/DA Mover* 3.2 (or higher). That's because the way fonts were handled was changed and a new font resource (called a FOND) was added. Older versions of the *Font/DA Mover* can't handle FONDs. — *Ellen Hirame*

What to do before you go to Works.



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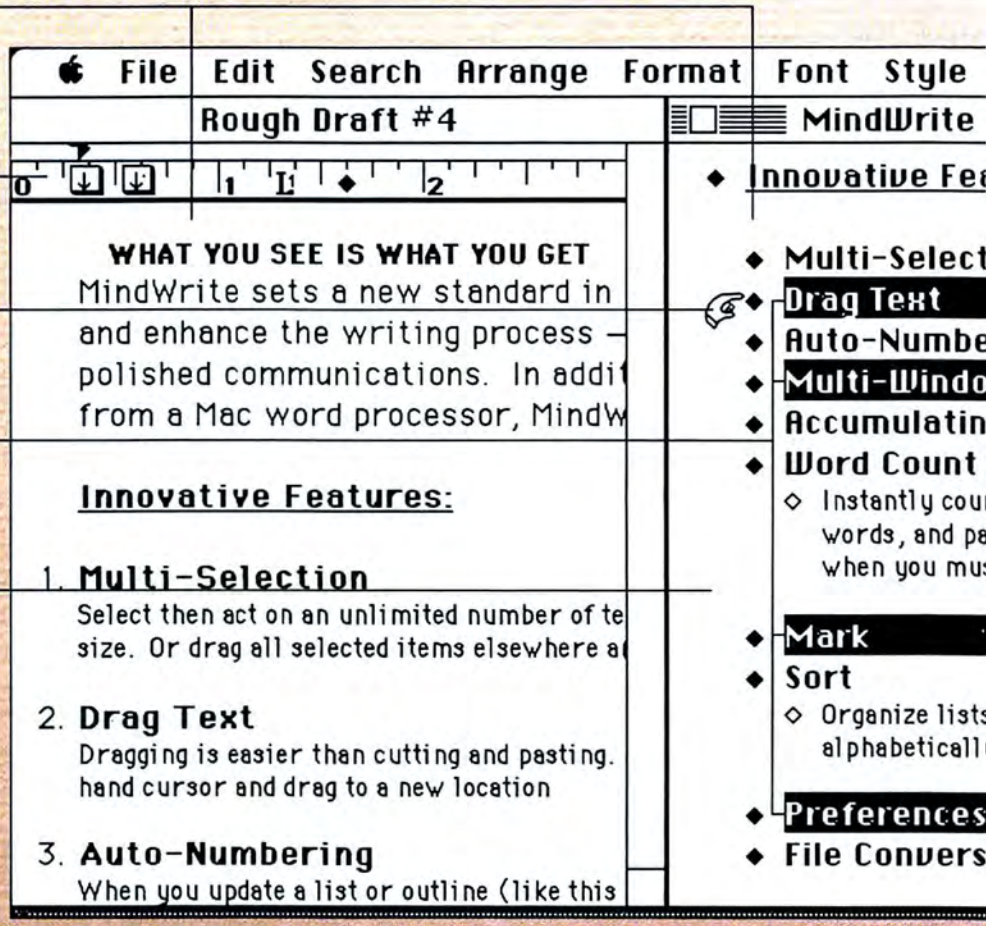
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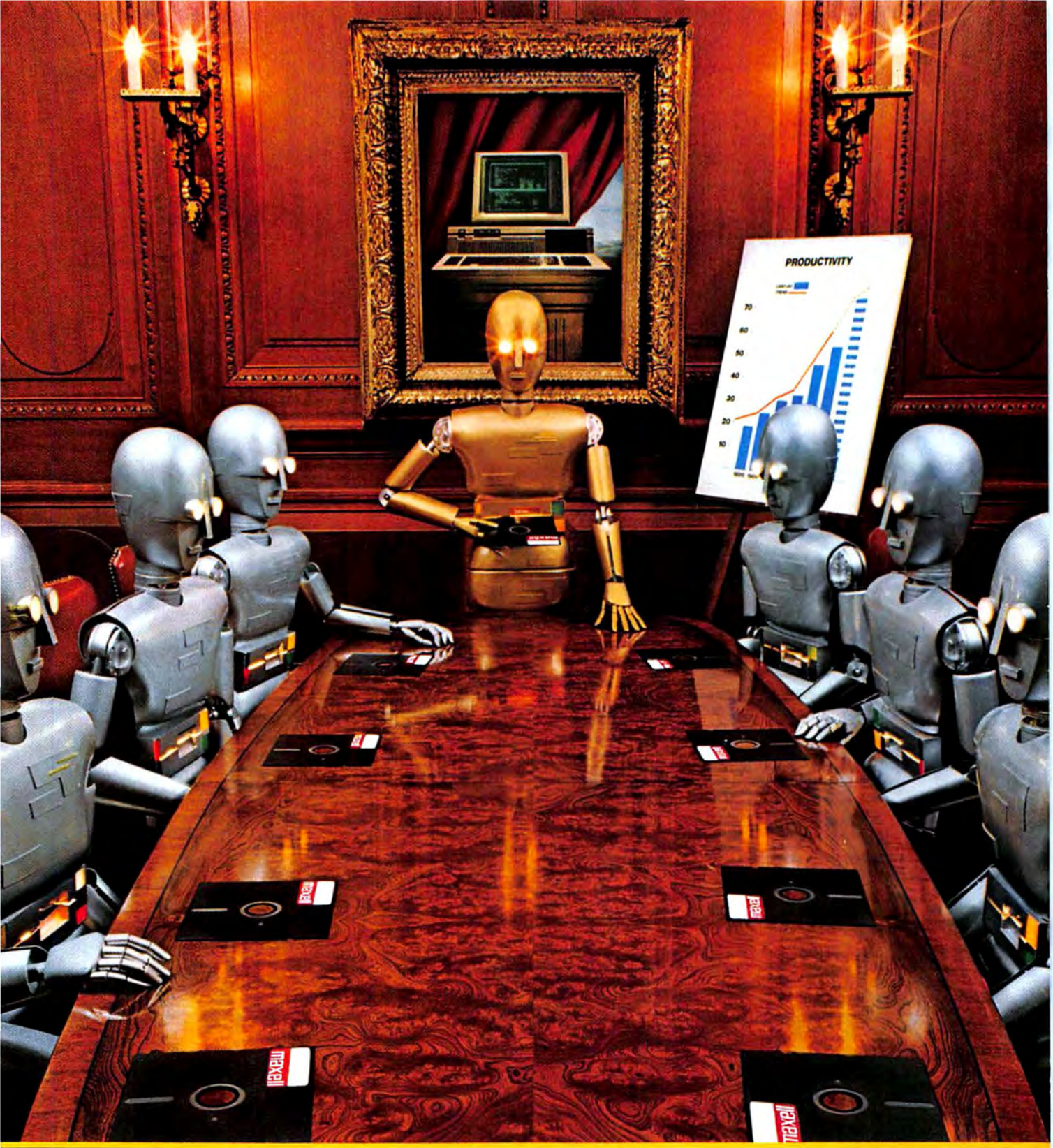
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by Robert R. Wiggins

CLEANING OFF THE DESKTOP

There's one thing I like about the Macintosh desktop metaphor: it doesn't collect those little scraps of paper with cryptic notes scribbled on them that my real desktop gets covered with. Instead, you get Note Pads and Super Note Pads and Phone Pads full of cryptic little notes (but at least they're legible and harder to lose). But no matter which kind of little notes you end up with, there comes a time when the piles get too big. It's time to handle them.

SETTING DVORAK STRAIGHT

Here's something a lot of you would like to do, reply to John Dvorak. Mr. Dvorak and I don't have much cause to interact; he's in California, I'm in New York; he's in the back of the magazine, I'm in the front; he's a general commentator on the Macintosh, I specifically look at business. But in the September issue he stepped onto my turf in his column by justifying his tirade against the Macintosh by saying Apple needed to fix his list of complaints to get into the office market. So let's look at Mr. Dvorak's complaints, but in strictly a business context.

1. Disk swapping. Well, I agree with him on this one. I hate it, and every business user (or any user for that matter) hates it, too.

2. Failure to maintain compatibility. Do you know that virtually none of the business applications that I know of had any problems on the Macintosh Plus? And the very, very few that did had problems stemming from their copy protection schemes? Sure, games had problems, and a few other programs did, too. My technical wizard advisors in these matters tell me that this was due to the fact that these programs did *not* follow the rules set down by Apple for software developers to follow. This incompatibility nonsense had no real impact on Macs in offices.

3. Icon Myth. Mr. Dvorak maintains that icons have no place in "serious business computing." My experience has been exactly the reverse. Serious business users don't want to learn computer commands; they want to spend their time using the power a computer brings them, and icons make life much easier. I will concede that most business users prefer View by Name in the *Finder*. And by Mr. Dvorak's comments that Mac users have to hand delete files I must assume no one ever told him that one can throw entire folders (and everything in them) away.

4. User idiocy. I will concede to Mr. Dvorak's point here, but it is irrelevant and immaterial when talking about the business environment.

5. Keyboard feel. Mr. Dvorak states that typist complain that the keys are too high off the desk. Huh? I've never heard that complaint from anyone. The keys are actually slightly lower than an IBM Selectric's keys (the number one office typewriter). Not only that, but the size and layout of the keys is very similar to the Selectric (even IBM can't claim that about their PC keyboard).

6. Keyboard home keys. I suppose this is a valid complaint, although most typists aren't idiots and can adapt readily to the Mac keyboard. It only becomes a problem if they are switching between keyboards.

7. No function keys. What is this fascination people have with function keys? Why does a key with a wonderfully meaningful name like F2 make computer users so warm and fuzzy? *Word* has something like 60 functions available by hitting different combinations of keys. The IBM-PC has 10 or 12 function keys. So on the Mac you have to hit two keys at once. Big deal. This is not a complaint I hear from business users.

8. The ⌘ and Option keys. His complaint with the Command (⌘) key is the symbol. His complaint with the Option key is its name. Mr. Dvorak suggests that these keys be named ALT and CONTROL. Actually, when complaints get down to a nitpicking detail like this, I smile, because it means the complaints ran out a ways back.



BRIDGET STARR TAYLOR

To summarize, Mr. Dvorak's complaints actually all center around the fact that the Macintosh is different from the IBM-PC (whose name he even invokes) in both small and large manners. I've usually found this to be an advantage in the glazed-over eyes of many business users. I will concede that these differences make it more difficult for the Macintosh to attract the IBM-PC user, but most people who have spent a long time mastering the vagaries of their PC aren't ever going to give them up anyway.

MAC-TO-MAINFRAME CONNECTIONS

I got documentary evidence that people are reading this column shortly after my first column on why the Mac isn't a business computer appeared in the August *MacUser*. I conceded one thing to the IBM-PC: mainframe connectivity. And did I get letters!! From people using their Macs as mainframe terminals. From people who make the products used to connect to mainframes. Uncle!! I give up!! It turns out the Macintosh makes a splendid mainframe terminal, as I discovered after attending a few demos.

At an Apple Business Seminar in New York, I saw a demonstration of the Netway 1000A by Tri-Data of Mountain View, CA. All I can say is: "Wow!" The Netway is a product that allows a Macintosh to establish four simultaneous host sessions, just as the IBM PC-3270 does. The software that comes with it also supports an intelligent cut and paste capability to make SPF (a popular IBM editor) users hang their tongues out. *And the Netway does not require a 3274 control unit.* So here's a product that lists for $2725 that will replace a piece of hardware costing over $25,000, allow 16 Macs to connect to an IBM mainframe via AppleTalk and a synchronous modem, with no other hardware required.

I also found out that IBM mainframes aren't the only ones people want to connect to. And while DEC has had an easy time since just about every communications program on the market supports VT100 emulation, Data General users haven't had it so good. Until now. Kaz Business Systems (10 Columbus Circle, New York, NY 10019) has a product called *FrontEnd* that provides D210 emulation. But that's not all. It has a defined interface that lets the DG host create output windows and put up dialog boxes on the Mac, giving a Macintosh interface to mainframe applications. It's really a wonder to see, and if you have Data General systems, you should definitely look into this one.

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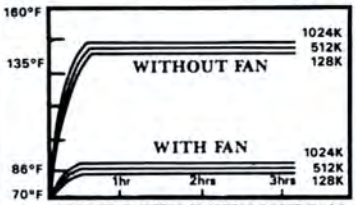
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SPELLING CHECKING

Most business users want word processing on a Macintosh to be simpler than on a typewriter, and one of the things they'd like is automatic spelling checking/correction. There are many spelling checkers on the market (see "Check it Out" in the October 1986 *MacUser*), but a new one has recently joined the ranks. *Thunder!*, from Batteries Included and written by Evan Gross, is an inexpensive yet full-featured spelling checker in a desk accessory. *Thunder!* features interactive checking (watching while you type) as well as selection checking, allows you to have your own supplemental dictionaries (which are simple text files), has a 50,000 word dictionary that only takes up 88K on disk, has customizable options remembered from session to session, and makes excellent suggestions when correcting (which *Thunder!* takes care of for you). But its best feature is called "Learned Words," which lets users define short abbreviations that are automatically replaced by longer selections when typed (for example, "p&c" could mean "personal & confidential," or you can set it to automatically replace words you always spell wrong with the correct spelling). *Thunder!* from Batteries Included.

MORE LASERWRITER FONTS

So you have a LaserWriter and need some more fonts. Or you upgraded to a LaserWriter Plus and still need just one or two more fonts. There are companies moving into this area. A big one is Adobe, the PostScript people, who have a line of downloadable LaserWriter fonts. But Adobe's fonts are expensive, and copy-protected.

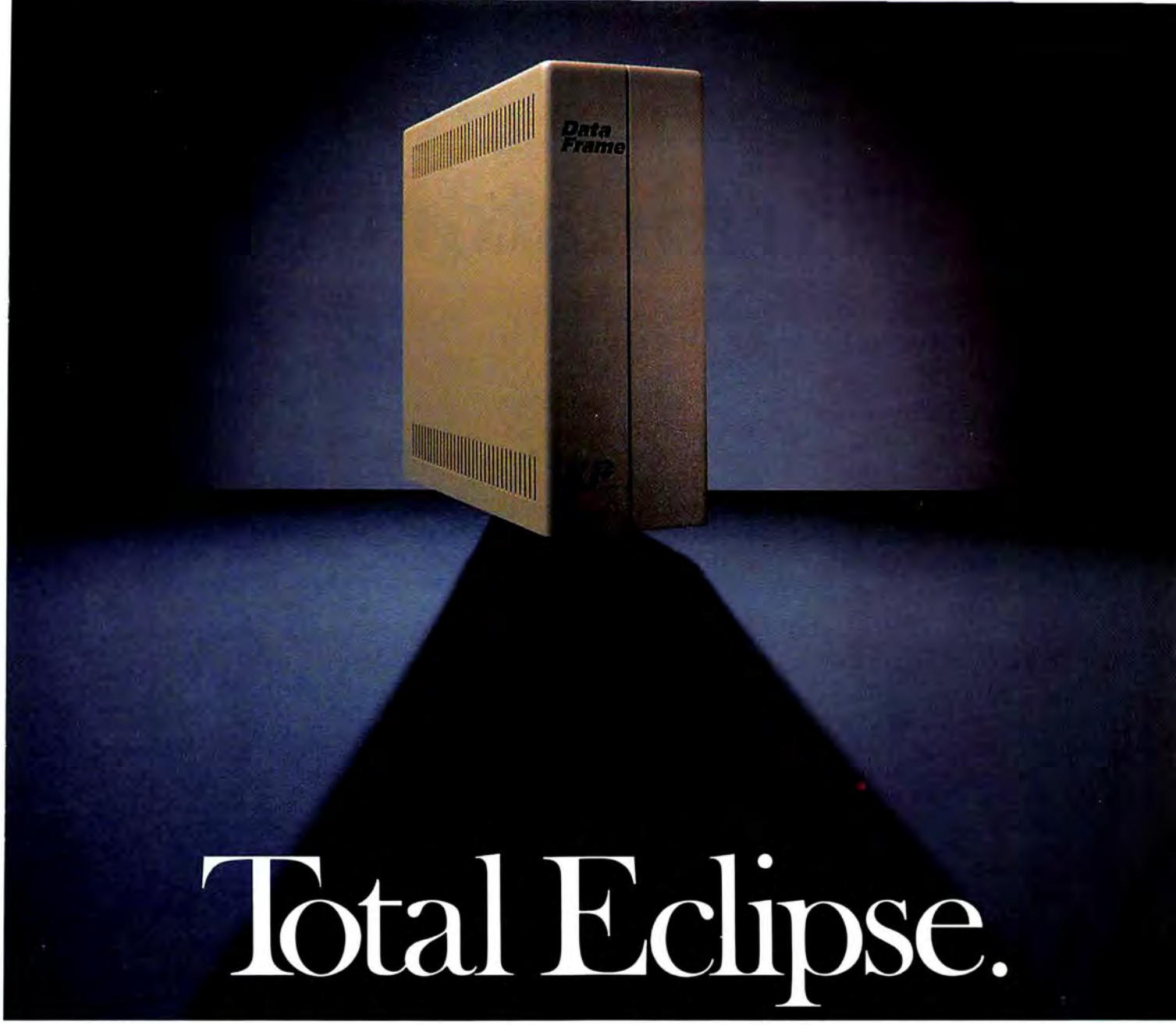
Then there are *Fluent Laser Fonts* from Casady & Co. who were already known in the Mac font world for their screen fonts. There is a good selection of *Fluent Laser Fonts*. They are reasonably priced, and not copy-protected. And Casady & Co. has used the new font features in Apple's latest system software for the Macintosh to provide screen fonts for some of their Laser fonts (such as Bodoni) that really look and behave like the Laser versions. That means nice features like italics that are italic, and not just bent to the side; and bolds that widen parts of the letters.

There are also some very attractive cursive *Fluent Laser Fonts*, such as Regency Script and Calligraphy. All in all, these make up a well-rounded collection of fonts, reasonably priced, attractively packaged, easily installed and used. *Fluent Laser Fonts*. From Casady & Co.

Test drive the XP here:

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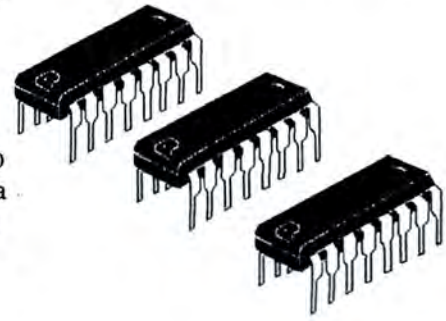
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by Doug Clapp

THE EYES GO FIRST

Boy it's tough getting old.

Things slow down. You don't have as much energy. You can't concentrate as well, for as long. Experience breeds vacillation. Middle-aged caution.

And close boxes suddenly seem so tiny.

You know, friends, Macintosh was created by young folks. Kids in their 20s, mostly. Smart kids. With sharp eyes.

And, no surprise, everything is little. Other computers have cursors; either big, blocky cursors or blinky underline cursors.

What do we have? A one-pixel wide "insertion point." Good thing it blinks!

And everything else is little: scroll bars, close boxes, grow boxes! No wonder newcomers are afraid they'll break something!

Take boxes. We've got size boxes, close boxes, and — with the new ROMs — zoom boxes. I've got nightmares of windows bordered by frames filled with boxes: close, size, grow, zoom, info, help, send to back, bring to front, enlarge, reduce, preview, tile, overlap, download, upload, place on AppleTalk, and, of course, continue execution in background even if not in frontmost window.

Take fonts. Do we need 9-point fonts? No. Anyone willing to read 9-point fonts deserves to.

Take buttons. Apple, for the most part, thinks buttons should be 20 pixels high and 70 pixels wide. Microsoft has a habit of using even smaller buttons. Often 60 or fewer pixels wide.

From now on, let's have 80 by 25 pixel buttons, okay?



Whaddya wanna bet that none of Microsoft's programmers are in their fifties? I can hear it now: "Well, he was getting up in years: 46. So we did the only humane thing. We put him to sleep."

I bet kids also design video tape recorders. VCRs strewn with tiny little rectangular pushbuttons with labels like "Rec." Let's not even talk about "remotes."

Oh for the 1950s! Gadgets with big pushbuttons. Real toggle switches! Cars with big shift knobs, knobs you could grab! Wrestle with! TVs with channel selectors that took muscle! That went "Chunk-Chunk-Chunk" when you changed the channel!

Kvetch, kvetch. I think I am sunblind, though. Here I am, the product of millions of years of evolution, staring into the sun.

We weren't made for this, you know? I remember reading a book about art — great painters, and how they did it. A sentence struck me and still remains: painters only paint light. There isn't anything else to paint! Only light reflected off objects. Light reflected off the world. Shades and shadows, bright and dim. The world as reflection. Whew.

It started with movies; but even movies are reflections. The sun's up in the projection booth.

Then TV. And we all started staring into the sun. In the early 60s there were cautions about "not letting the kids sit within five feet of the TV." That's not heard anymore.

It's a perverse national ritual: every night millions of TVs flicker on and millions of Americans sit. Rapt, looking into the sun where images dance.

Now there's a company that sells undergarments made with metallic threads — to keep monitors from turning your unborn children into Flipper. Rays — Zap: a mutant.

I've got a friend who's a throwback. Doesn't eat meat, wears jeans, smokes funny weeds. Lives in the country. I called him once when I lived in LA. "How are you?" he asked. "Ah...," I said, " I feel sorta listless; not much energy. Don't know why."

"Of course you feel lousy," he said. "Look where you live! You got any idea how many microwaves are pouring through your body *this very moment?"*

Microwaves pouring through my body? Do I need that? Wait — it was right on the tip of my . . . musta been zapped by Channel 4, boring another hole through my cerebrum!

Sunblind. In the last years of this century, the sun is everywhere. My face is into the sun this moment. Above, a fluorescent fixture pours "clone-light" into the room. With a shortwave radio, we could listen to Moscow or Lima or Rome or Peking. They're in the room, too. Just think: Moscow in your brain, this instant!

Can't let the paranoia take over. Gotta keep control. Now it's big screens though, isn't it? Full-page displays! Why do "they" want us to have large monitors? Maybe they know . . . what? Maybe that little punk Burrell Smith doesn't like us. Maybe that's why he designed that big "Radius Full Page Display" monitor? He doesn't like us. Wants to make us all sunblind! Maybe Burrell isn't really designing hardware. Maybe he is designing a new race. A race of *BurrellSmithMutants!*

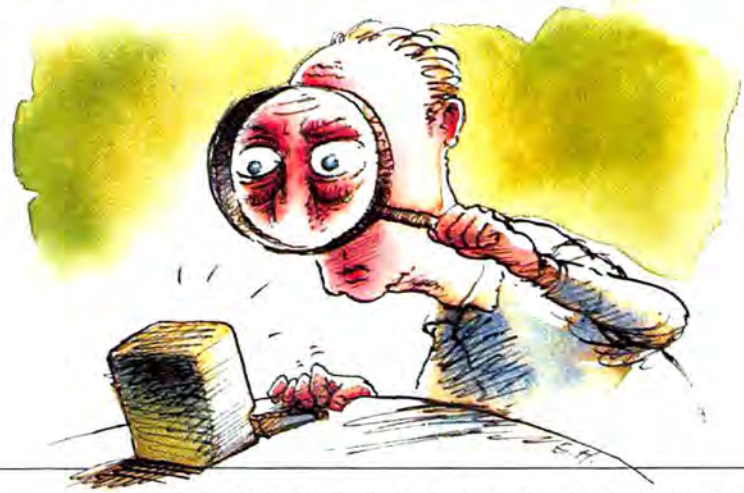
You gotta watch out for the kids, ya know?

Uh-oh. Just talked with my editor, Steve Bobker. Or "Mr. Bobker, Sir" as I like to call him. (I know where the checks come from.) And he reminded me that even though it's warm and sunny as I write this, the issue that this column will be printed in will be the December issue. That means this will be a Christmas column.

Christmas. Boy, do I love Christmas. I *love* Christmas. Food, presents, friends, presents, Christmas carols, presents.

Christmas. Boy. Maybe I could slip my wife a note: "Radius Full Page Display 1-408-732-1010." Real-life is different than computer columns, you know. And nothing is like Christmas.

Merry Christmas.



GARY HOVLAND

THE MAC ATTACK!

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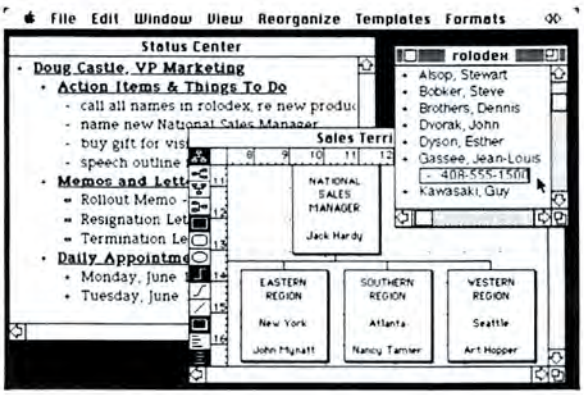
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QUICK CLICKS

THUNDER! ★★★★★

List Price: $49.95. Published by Batteries Included, 30 Mural St., Richmond Hill, Ontario, Canada L4B 1B5. (416) 881-9941. Requires 512K+. Version 1.0. HFS compatible. Not copy protected.

Does the world need yet another spelling checker? It seems that you can't turn around without bumping into a new one! Well, if the spelling checker is *Thunder!* the answer is emphatically "Yes."

Thunder! is a desk accessory style checker. It works inside virtually all applications as they run. Users are offered a choice of interactive, as-you-go checking or selection checking. There is also an option to compile statistics about selections.

What makes this spelling checker really stand out is its excellent behavior and performance under all circumstances and its extreme ease of use. It is based on a superbly chosen (and absolutely correct) 50,000-word dictionary. That's big enough to catch 99 percent of all spelling errors. User-created supplementary and learned word dictionaries are also available.

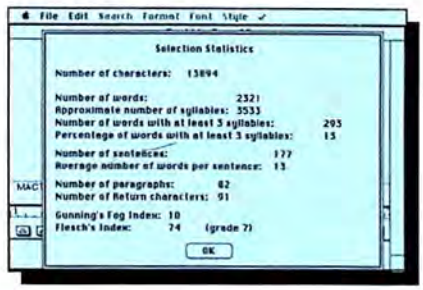
All the necessary buttons and options can be clicked on or chosen via command key combinations. There is total flexibility, including assigning your own key choices to some of the options. *Thunder!* will, if you desire, show you its suggestions for misspelled words, and inserting any of them is a simple mouse or keyboard operation. This program slows you down less than most other spelling checkers.

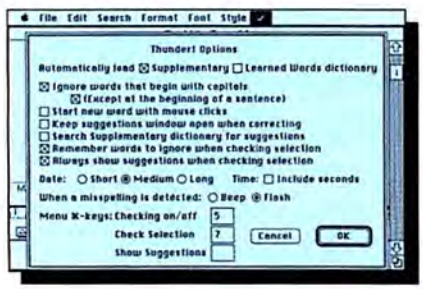
Learned Words are one of the neatest features seen in any Mac word processing program. They form a glossary that is easy to create and easy to use. You can easily teach *Thunder!* that when you type "Btw" it should automatically insert "By the way," (including the comma) into the document. Multiple line entries are permitted, so "sig" could expand to your whole name and address on four lines. The only limitation is that the length of each entry can't be greater than 255 characters.

Thunder! is the quickest, most pleasant to use spelling checker seen yet. It does have its limits, though. In its selection checking mode it works on the Clipboard and thus can only work properly with programs that use the Clipboard correctly. For example, *Word* documents can be checked, but their formatting will be lost. (Of course, *Word* documents can be checked perfectly well in the interactive mode.) Also, due to the use of the Clipboard, long selections should be checked in sections of 32K or less. If you routinely expect to selection check very long documents, there are better programs available than *Thunder!* The final drawback is the lack of a thesaurus. One is planned for a future version, but if you need one now, look at *MacLightning* 2.0.

*Thunder!*comes with an excellent manual that not only has the usual instruction and reference sections, but also a lot of information on compatibility with other programs. In the time I've used it, *Thunder!* has quickly become the one program I'd least like to be without. If you write, try *Thunder!* — *SB*







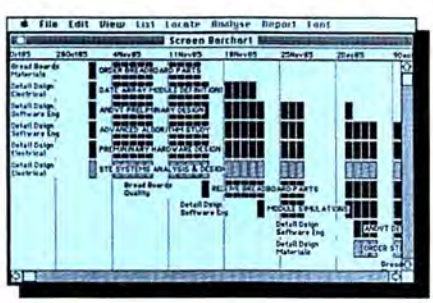
MICROPLANNER PLUS ★★★★★

List Price: $495. Published by Micro Planning Software USA, 235 Montgomery St., San Francisco, CA 94104. (415) 788-3324. HFS compatible. Copy protected.

MicroPlanner Plus is a major enhancement to *MicroPlanner*, which was a good project management system to start with. Now, with the enhancements and added features in *MicroPlanner Plus*, it is a great project management system.

MicroPlanner was written back in the days of 128K Macs and had design trade-offs to ensure it could run on a 128K Mac. Most of the deficiencies in *MicroPlanner* arose from these trade-offs, and *MicroPlanner Plus* directly addresses almost all of them. *MicroPlanner Plus* is memory based, making it much faster than the original *MicroPlanner*. *MicroPlanner Plus* uses standard print drivers for all printing and no longer needs a separate print utility so now it's really what you see is what you get. *Plus* has a font menu which *MicroPlanner* lacked.

MicroPlanner Plus retained the strong points of *MicroPlanner*. Its analysis capability is outstanding, especially of resource usage. *MicroPlanner Plus* will show when resources are overloads and when resources are available and unused, or it can perform a resource analysis and show what the effect on the project schedule will be of a given resource mix. *MicroPlanner Plus* can also do a time-critical resource analysis to find out how many resources are needed to finish on time. When analyzing resources, *MicroPlanner Plus* will stop a task in progress to let a task on the critical path have access to the resource. If tasks must be completed once they start, they can be defined as "non-split" tasks and *MicroPlanner Plus* will adjust its analysis accordingly. *MicroPlanner Plus* can also produce a "Supercritical activities" report of those activities which will prevent deadlines from being met.



MicroPlanner Plus has other features to enhance the usefulness of its reports, such as options to narrow by responsibility, by zone, by resource, or by activity type, the number of activities being examined. It will even save reports out in *MacDraw* format so that they can be customized further.

MicroPlanner Plus is fully Mac Plus and HFS compatible. About the only thing they

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The FPD is in every way an extension of your Macintosh, from the electronics to the aesthetics. But then, there's a good reason for that.

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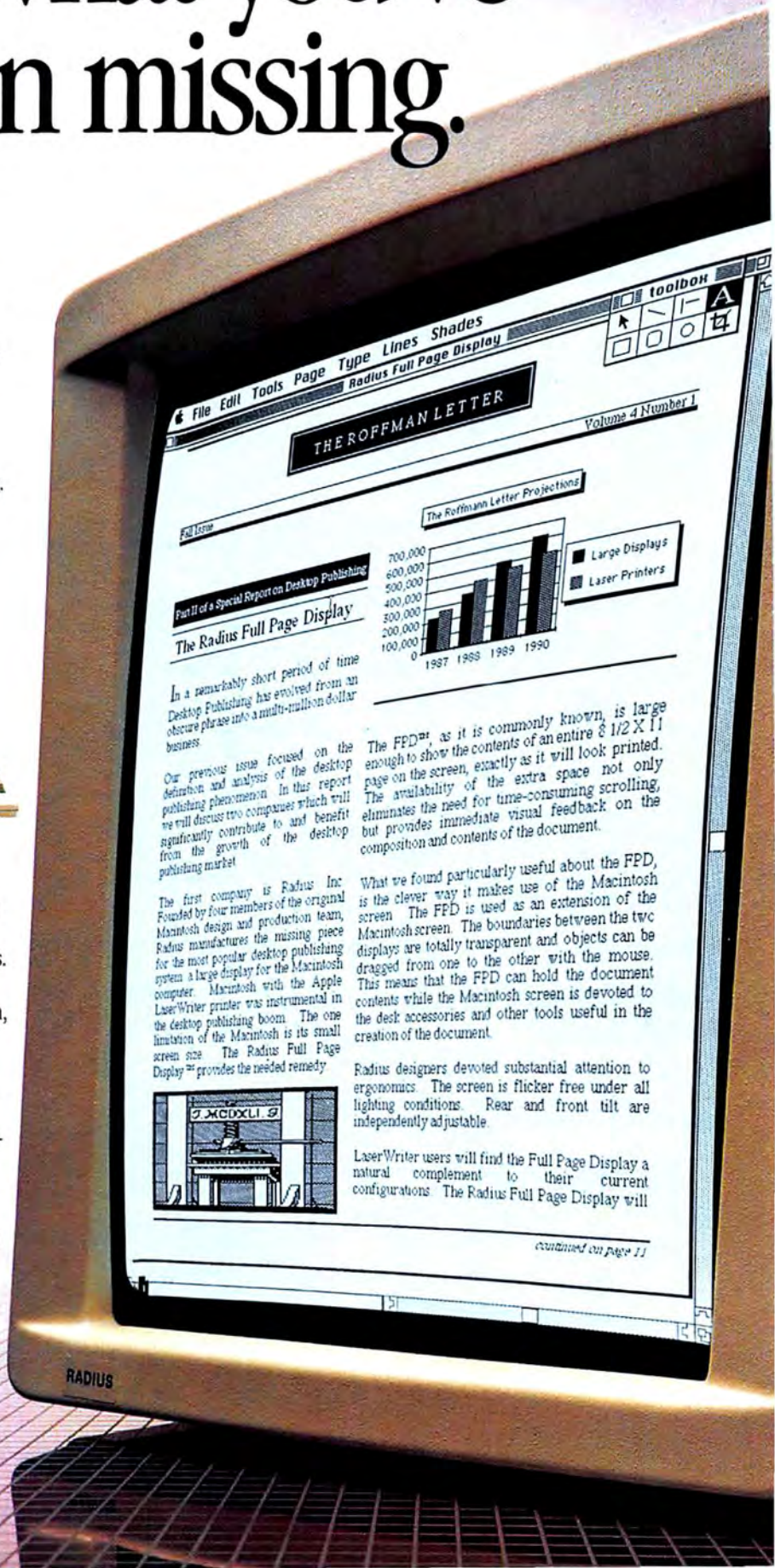
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didn't improve was the copy protection (it still is). *MicroPlanner Plus* isn't perfect. It takes some getting used to due to the way activities (tasks) are defined and linked and the nonintuitive way the activity network is navigated. And while reporting is considerably enhanced, the reports are still not as attractive as they could be given the Mac's graphic nature (although the ability to "tweak" the reports in *MacDraw* helps here). But these are fairly minor quibbles in view of the power *MicroPlanner Plus* provides. For serious project planning on the Mac, it's in a class by itself. — *Robert R. Wiggins*

CALENDARMAKER ★★★★½

List Price: $30. Published by CE Software, 801 73rd Street, Des Moines, IA 50312. (515) 224-1995. Version 2.0 reviewed. Mac Plus compatible. Not copy protected.

In the realm of nice, but not strictly necessary utilities, is CE Software's *CalendarMaker*. This program, which is available as shareware (or MacHonorware as CE prefers to call it) from many user groups and BBSs is now also being sold prelicensed by dealers and CE.

This program's only purpose is to generate calendars. All calendars are monthly, but users have the option of printing a very large version of each month in landscape mode, two months to a page (in portrait or upright mode), and one month with an illustration of the user's choosing (also in portrait mode).

CalendarMaker's watchword is flexibility. Pick fonts and sizes, shapes and borders, print to the ImageWriter, the LaserWriter or disk (as either a PICT resource, for further work in *MacDraw* or a page layout program,



or a *MacPaint*-type file). Each day space can contain notes. These notes can contain up to 255 characters each. Users either enter their notes directly or import them from *Sidekick*, *BatteryPak*, *Calendar* 1.1 or *MORE*. Also provided are 24 special icons which can be used to highlight days.

A basic *CalendarMaker* file consists of 12 monthly subfiles. Each month can have its own illustration, which the program will easily import from any *MacPaint*-type file. International calendars are easily created, since *CalendarMaker* gets the names for the months and days from the current *System* file. If the file is a German *System*, for example, the names will all be in German. Use Apple's *Localizer* program to create any foreign language calendar.

Operation could not be simpler and the short manual will serve primarily as a reference, not a guide. The only "feature" that might cause some problems is the Print command dialog. The default Send To value is the disk as a *Draw* (or PICT) file. This line is not in most Print dialogs and its placement at the very bottom makes it easy to overlook. Thus many users start creating *MacDraw* files when they intend to print out their calendars and are somewhat baffled by the failure to produce hard copy output.

Registered or prelicensed owners get a special bonus in the form of the *IconMover* program. This program allows users to "steal" any icons on any of their disks for use in their calendars. Icons can also be designed, modified, transferred and stored to separate files with this program. This useful adjunct to *CalendarMaker* is not shareware, but an incentive to license *CalendarMaker*.

CalendarMaker is an ideal holiday gift, one that can go on giving pleasure for years (literally). — *SB*

HFS BACKUP ★★★★

List Price: $49.95. Published by PCPC, 6204 Benjamin Road, Tampa, FL 33614. (813) 884-3092. Not copy protected.

It's unusual for a utility included with a hardware purchase to become a successful software product on its own. However, the *HFS Backup* program, created by the makers of the MacBottom hard disk, and which was shipped as standard equipment with their hard disks for quite awhile is becoming a classic in its own right. This is one program you'll find living on quite a few different drives.

HFS Backup has most of the features expected in a backup utility. There are three main options: Backup an entire volume, files that have been changed since the last session, or selected files only. After selecting either the entire volume or selected files modes, a window appears with a listing of the files and folders in the volume, file sizes and last modification dates. Folders can be expanded in order to see the contents of each, or all files can be listed in alphabetical order, without indicating folders. Individual files and/or folders can be marked to be included or omitted from the backup process. The main listing window displays the number of files to be backed up, the size of the files in kilobytes, and the number of single or double sided floppy disks required.

The user can choose to have floppies being prepared for the backup process be verified before and/or after formatting, a feature that more backup programs need (backing up to a damaged disk isn't a lot of fun, especially when it's discovered in the restoration process!).

The specifications for a backup session can be saved as a template, if the same files/folders are regularly backed up. The restore options are similar to those for backing up: the contents of an entire volume can be restored, just the changed files, or specific files only. Files are saved in a compressed format, and *HFS Backup* can handle files larger than 800K, crucial for a program of this type. A text file listing the contents of a volume can be created from within the program.

While evaluating *HFS Backup*, I was impressed enough to start using it to backup my own hard disk. It performed flawlessly. PCPC informed *MacUser* that a new version of the program was in the works that greatly expanded the capabilities of the version reviewed here (1.1). We look forward to it. Until then, though, *HFS Backup* appears to be leader of pack. — *DB*



GLUE ★★★★

List Price: $49. Published by Solutions, Inc., PO Box 989, Montpelier, VT 05602. (802) 229-0368. Not copy protected.

Although most Macintosh programs don't have too much trouble "talking" to each other, sometimes it's nice to be able to go beyond the limitations of the Clipboard. And then there's the question of exchanging documents between users that don't have the same programs; software redundancy can be an expensive problem for large companies. *Glue* goes a far way towards providing answers to these problems in an economical fashion.

Glue allows many Macintosh programs to



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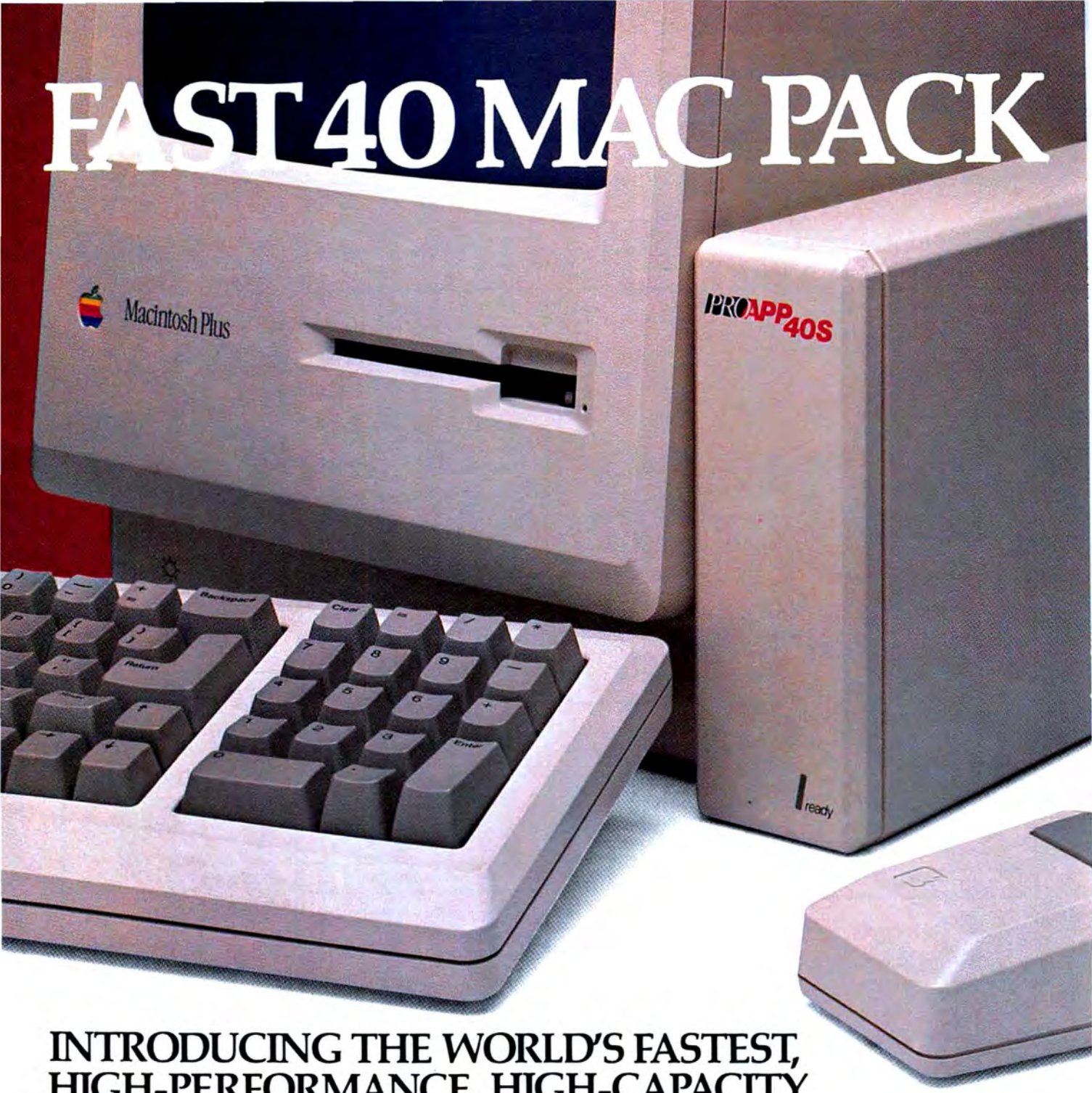
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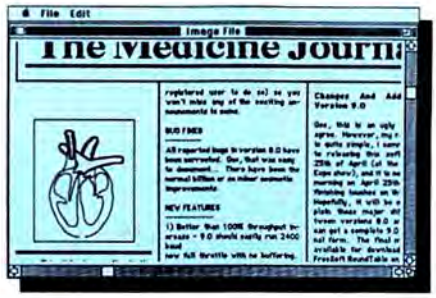
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QUICK CLICKS

output directly to disk, instead of a printer. Don't confuse this with the standard Mac method of creating a screen dump; COMMAND-SHIFT-3 simply creates a bitmap image of the screen. Using the *ImageSaver* driver, full and multipage documents are written to disk in their entirety. *Glue* converts entire files, text and graphics, into QuickDraw commands, which can then be viewed with the accompanying *Viewer* program.

Installing *Glue* is a cinch: the *ImageSaver* driver is placed into the System folder, where it exists as a printer driver. After selecting *Chooser*, output will be directed to disk instead of a printer. To deactivate *Glue*, simply select another printer driver in *Chooser*.

Within the *Viewer* program, either entire pages or portions of a document can be selected and copied to the Clipboard. One drawback: text is converted into QuickDraw commands, so it can only be edited as text in *MacDraw* (though original formatting will not be maintained). It will print correctly on the LaserWriter as real text, and the fonts can also be changed in *MacDraw*. The *Viewer* is a standalone application; much more useful were it a desk accessory.



We tested *Glue* with a wide variety of programs: *MacWrite, MacDraw, Jazz, Excel, Word, Chart, ReadySetGo, PictureBase* and *MacProject*. All wrote their files to disk with no problem. *PageMaker* was the only exception to the rule: It outputted what was seen on screen, not what would have printed on a LaserWriter (When composing pages in *PageMaker* to be printed to disk with *Glue*, make sure that either the *ImageSaver* or *ImageWriter* drivers are active in the *Chooser* window in order to get true WYSIWYG).

Glue has many diverse applications. For example, page layouts can be examined and printed without the program with which the documents were created. This will be a boon for companies that have production at one location and printing facilities at another. Large spreadsheets and charts can be placed into page layout programs without juggling separate sections.

At $49, *Glue* is much cheaper than having a wide variety of programs on hand to cover all possible situations. Desktop publishers will find this to be a useful addition to their software libraries. — *DB*

SMASH HIT RACQUETBALL ★★★★★

List Price: $14.95. Published by Primera Software, 33 Norwood Ave., Kensington, CA 94707. (800) 643-0800. Requires 512K+. Copy protected.

In the bustling financial world of New York City, success is measured by the caliber of one's racquetball club. On weekends, you can observe the legions of well-attired yuppies (both male and female) flocking to the courts to challenge each other to friendly mortal combat. Well, now those same weekend warriors will stay in their cozy corner offices, perched in front of a Macintosh, because *Smash Hit Racquetball* will be on the screen.

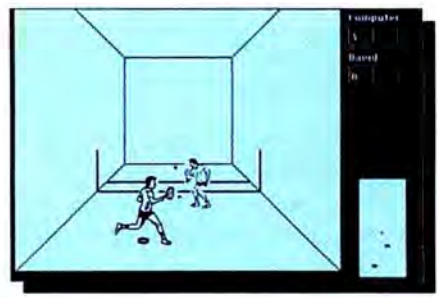
This new entry to the Macintosh game market has some interesting things going for it. The price is $14.95, which makes it one of the cheapest commercial games available on the Macintosh. Although the game is copy protected, it can be installed and de-installed once on a hard disk (another Mac game first). And *Racquetball* is without a doubt one of the most satisfying sports simulations to appear on the Mac to date.

The game starts off with a full three-dimensional view of a racquetball court. A smaller window in the lower left hand side of the screen displays an overhead view of the court. Your player is pitted against a fellow in the Mac. The two players are easily distinguishable (the Mac's player appears dimmed), which is necessary once the action begins. The mouse controls the player's movements, while the keyboard determines where on the main wall your player will aim when the ball is hit. For example, pressing the uppermost left key (tilde key) will cause the ball to be shot towards the upper left hand area of the wall. The lower right hand key (backslash / question mark) will aim the ball towards the lower right hand side of the wall. When a player "locks on" to a ball's trajectory, the Mac emits a beep, which means your player will hit the ball.

The players motions are smoothly animated, and fun to watch. The perspective is quite good (players get larger as they move towards the back wall, smaller as they move towards the front of the court). Digitized sounds of a real ball in play accompany the game, to successfully add to the realism, as well as a command key combination for making your player yell "darn it!".

The game's menus allow the sound volume to be changed, the difficulty level to be modified (beginner, intermediate, advanced or professional), and also provides two practice modes (serving and receiving). There's also a slow motion playback command, which will replay up to 30 seconds of the last play. The game can be paused and continued at any point during play.

I found *Smash Hit Racquetball* to be entertaining, easy to play, and a riot at Wall Street parties. For the price, it just can't be beat. — *DB*



REFLEX FOR THE MAC ★★★★★

List Price: $99.95. Published by Borland International, 4585 Scotts Valley Drive, Scotts Valley, CA 95066. (408) 438-8400. Not copy protected.

In the April issue of *MacUser*, I reviewed a new relational database called *Interlace*. I liked it a lot. The product has since been purchased by Borland, renamed *Reflex For The Mac* and updated to include some new features and conform to Borland's policy of no copy protection. The changes have enhanced an already excellent product and give Borland a strong entrant in the Macintosh database market.

Reflex Mac is a relational database, which means that its files can be interconnected. For example, a file used to record inventory can be linked to an invoice or sales order file. Changes made to one of the links are automatically reflected in the other. There are several relational databases available for the Mac, but most of them require sophisticated programming to establish connections and create applications. *Reflex* uses a simple visual design for creating files, establishing links and generating forms.

Fields are as easy to create as typing the name, and can be moved up, down or around in a file using click and drag. Each file can contain up to 255 fields, and a field can be as long as 1000 characters. Fields can hold a wide variety of data, including text, integers, monetary values, dates, times or logical constructs. *Reflex* supports full access to Mac fonts and styles, so any field or label can be highlighted.

Reflex uses simple formulas to accomplish complex tasks, formulas similar to those used by spreadsheet programs and

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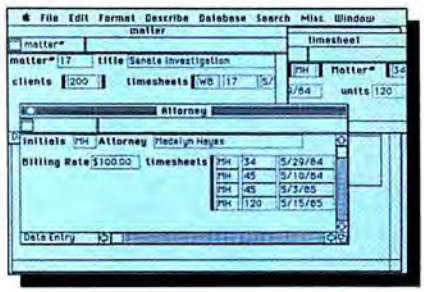
QUICK CLICKS

has added the ability to perform date and time arithmetic. The program recognizes a wide selection of spreadsheet functions and mathematical operations. *Reflex* also has full calculation abilities and can be used as a "freeform" spreadsheet as well as a database.

This program has very powerful search and sort capabilities. Extracts and reports are put together quickly and easily using a simple dialog box called Querybuild.

The most significant differences between *Interlace* and *Reflex* are the removal of copy protection, better use of the graphic interface for simpler selection of objects and group operations, the ability to read and write custom text files without tabs for better communication with other programs, and full support of nonstandard paper sizes.

Reflex For The Mac is a very good program, now backed by a strong and excellent company. I liked it before, and it's even better now.—*MDW*



THE PRINT SHOP ★★★★

List Price: $79.95. Published by Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. (415) 479-1700. Requires 512K+. HFS compatible. Copy protected.



Desktop publishing has been happening on many levels for a long time, even though it only came into vogue as a marketing concept with the advent of powerful systems that turn out professional quality publications. Schools and small groups have for years been using a program called *The Print Shop* on Apple II or Commodore systems to create newsletters, greeting cards, banners and personalized stationery.

An enhanced version of *The Print Shop* is now available for Macintosh. While it won't replace page layout software as a professional publishing tool, *The Print Shop* (Mac) makes it very easy to create attractive personalized cards, banners or letterhead in minutes.

The Print Shop produces four basic types of publications: greeting cards, banners, letterhead and signs. What makes it different from other publishing programs is that each of these projects has predefined dimensions, layouts, shapes and print formats. You don't have to measure to define the front or inside panel of a greeting card, for example—the space you work in is already determined. If you want to place a border around the front panel of a card, you don't have to manually fit it into place. Simply select a pattern and the program will build the border.

Perhaps the best aspect of this simplified approach is the ease of printing. Greeting cards print out in the correct orientation so you can take a page out of the printer, fold it and have a finished card. The same concept applies to the other projects, also, so the banner application generates very large letters from whatever text you enter, even adding such style touches as bold, underline, outline and shadow.

The Print Shop offers full access to fonts and styles, and also to graphics. The program includes a wide selection of graphics for various occasions, but can also pull images directly out of *MacPaint* files or off the Clipboard. You can tile images, or mix and match very quickly and easily.

To make *The Print Shop* so easy to use there had to be some tradeoffs. The biggest drawback is a certain lack of flexibility that will be most noticeable to experienced Mac users. For instance, you can't simply pick text or pictures up and put them where you want them, nor can you grab a picture and resize it. The program lets you select from a variety of sizes, but they are predetermined sizes that cannot really be altered. Still, *The Print Shop* is a lot of fun to use and I don't know an easier or quicker way to do personalized printing.—*MDW*

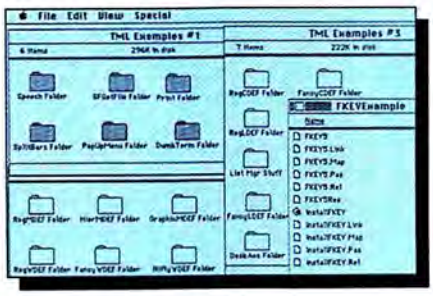
TML SOURCE CODE LIBRARY ★★★★★

List Price: $79.95.. Published by TML Systems, 4241 Baymeadows Road, Suite 23, Jacksonville, FL 32217. (904) 636 - 8592. Requires TML Pascal. Not copy protected.

The *TML Source Code Library* from TML Systems is a collection of advanced programming examples written in *TML Pascal*. *TML Pascal* is a complete Pascal development system for the Macintosh developed by Tom Leonard and priced at $99.95. Readers of *MacUser* have already seen examples of *TML Pascal* in a series of articles on programming the Macintosh with Pascal by Steven Martin.

Although the examples in the *Source Code Library* are written in *TML Pascal*, the techniques used are of interest to any programmer. Consequently, this library (priced at $79.95) is highly recommended for anyone programming the Macintosh in any language.

The examples contained in the *Source Code Library* show how to write programs that use custom definition routines, speech, serial drivers, split bars and other



topics of interest to the Macintosh programmer. As if this were not enough, TML Systems has even completely documented the examples!

The *Source Code Library* is provided on three 400K diskettes and contains one example of each type standard definition routine. In addition to the "standard" example, the *Source Code Library* also includes a "Fancy" folder that demonstrates how you can customize these Macintosh objects.

Briefly, the *Source Code Library* contains program examples of the following topics: Speech—*MacInTalk* speech synthesis, modeless dialogs; SFGetFile—customization of the Standard File dialog; Print—Print Manager examples; Split Bars—split bars (i.e., a window with separate scrollable panes); PopUpMenu—assignment of a menu to arbitrary region of the screen; Dumb Terminal—serial driver application in dumb terminal program; RegMDEF—regular menu definition procedure; HierMDEF —hierarchical menu example (i.e., a menu with submenus embedded in a menu item); GraphicMDEF —pattern selection menu definition routine; RegWDEF—regular or standard document window definition routine; FancyWDEF—window and menu definition routines to create window with a menu bar; NiftyWDEF—window definition procedure with a "mini" title bar and no scroll bar areas; RegCDEF—regular control definition

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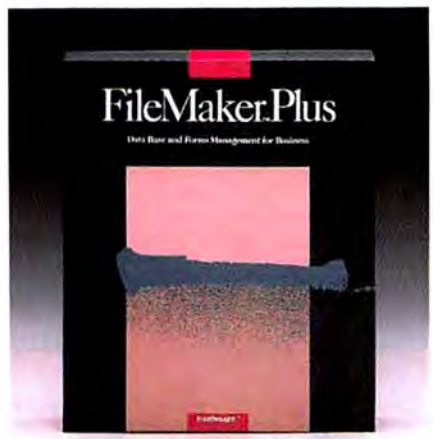
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procedure with buttons, radio buttons and check-boxes; FancyCDEF—fancy control definition procedure that has a plain control and a dial-type control; FKEY Example—create an FKEY and install it into the *System*; RegLDEF—regular list definition procedure that defines a list of strings with a small icon to the left of the string; FancyLDEF—fancy list definition procedure similar to RegLDEF, but using a list of patterns; and DeskAcc— a complete source code for a simple clock desk accessory.

As you can see, the *Source Code Library* contains a very wide range of example programs. In addition to providing the programmer with a complete set of working programs, *TML* has recognized one of the great truths of programming: "Real programmers don't read the documentation, they look for programming examples."—*Terry A. Ward*

TML DATABASE TOOLKIT ¢¢¢¢

List Price: $89.95. Published by TML Systems, 4241 Baymeadows Road, Suite 23, Jacksonville, FL 32217. (904) 636 - 8592. Not copy protected.

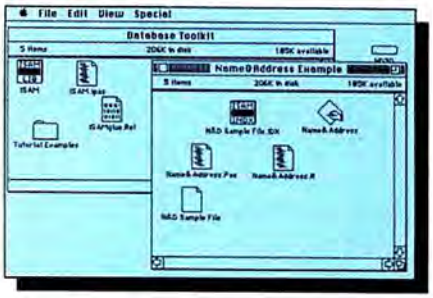
The *TML Database Toolkit* from TML Systems is an implementation of an Indexed Sequential Access Method (ISAM) database layout that provides fast and efficient access and administration of large data files in applications developed with TML's *MacLanguage Series Pascal* compiler. By using the *Database Toolkit*, it is possible to save time in the development process of any program that must manage large amounts of data.

TML Pascal is a complete Pascal development system for the Macintosh, developed by Tom Leonard and priced at a most reasonable $99.95. Readers of *MacUser* have already seen examples of *TML Pascal* in a series of articles on programming the Macintosh with Pascal by Steven Martin.

The *Database Toolkit* comes on one 400K disk. It contains both the ISAM library files and interfaces to *TML Pascal*, as well as several folders of example applications. The ISAM special library file contains the code segments that implement each of the ISAM file access routines. A *TML Pascal* file, ISAM.Pas, declares the interface to each of the ISAM procedures. This interface is accomplished by means of an ISAM-glue.ipas file, which is the actual relocatable object code file. Finally, a set of tutorial examples is included as well as a complete, and more typical application—a name and address database.

Unlike Pascal, which allows only sequential or random access of data files, an ISAM file may be accessed by means of a key field. The ISAM file mechanism is designed to allow access to records in a data file using a symbolic key (such as a person's name) rather than by record number as in Pascal. In addition, it is also possible to access a data file in a sorted sequence based on a key field.

The TML implementation of the ISAM mechanism also provides for multiple keys per data file, multiple key parts which may be discontinuous, duplicate keys (with sequence preservation), partial key lookup, forward and reverse sequential read, and a key update mechanism. In addition, the



TML Database Toolkit supports open multiple index files simultaneously.

The product is supplied with a very good manual describing the uses of ISAM, and contains a good discussion of the advantages of ISAM database management compared to the data handling facilities provided by Pascal. The manual, combined with the well-documented example and tutorial programs, makes the development of an ISAM-based project relatively painless.

The product is heartily recommended to anyone contemplating the design and construction of any application for the Macintosh where large amounts of data are to be managed.—*Terry A. Ward*

MINDSIGHT ¢¢¢¢

List price: $495. Published by Execucom Systems Corp., 3410 Far West Blvd., Austin, TX 78731. (512) 346-4980. Requires 512K+, HFS compatible (version 1.1), copy protected.

In the old days of mainframe computers, before there were spreadsheets, there was a program called *IFPS (Interactive Financial Planning System)*, which ran on a variety of mainframes. It was designed to let financial analysts use simple statements to create complicated financial models for doing year-to-year (or month-to-month) financial projections. The output of *IFPS* resembled the not-yet-invented spreadsheets, with variables listed down the left side, years (or quarters or months) across the top, and columns of figures in the middle representing the various periods.

Then came the flood of spreadsheets, and most financial analysts turned to them for their analysis. But spreadsheets are general-purpose tools, and, while useful for financial work, are not nearly as easy to learn as *IFPS* was. So Execucom Systems, the company that brought out *IFPS* has introduced a Macintosh version of *IFPS* called *MindSight*.

MindSight is a very powerful financial analysis tool, with a wealth of options and features, and comes with a fairly good manual and many example models to learn from. Models are entered in a window in simple statements like PROFIT = SALES – EXPENSES. When asked to solve the model, *MindSight* presents a spreadsheet-like window containing the results. *MindSight* will also plot groups of variables over time in a variety of graph formats.



The power of *MindSight* comes from its analysis capabilities. Models can be consolidated with other models. Variables with the same name in both models are added together, producing a new model. For corporations with multiple subsidiaries and consolidated balance sheets, this feature is extremely useful. *MindSight* also offers "what if" analysis. A few variables can be changed and the model resolved without disturbing the base model. And the most powerful feature, goal-seeking, allows a target for a variable (such as profits) to be set and another variable to be varied (such as price) to achieve the goal. All the analysis features combine to make *MindSight* a fabulous analytical tool.

MindSight isn't perfect. Its output capabilities are shameful for a Macintosh application. Font selection is not possible, page breaks are not user definable, and report layout is not easily specified. It is virtually impossible to get an attractive report out. And since the cut and paste capability is text-only (not the tab-formatted output expected by most spreadsheets) using other applications to improve the look of reports is difficult. An option to save-as a SYLK file would have greatly improved *MindSight*'s usability for reporting. *MindSight* is also copy-protected, which can cause occasional bombs if the master disk is not in the drive *prior* to running a copy of *MindSight*.

All things considered, however, the power of *MindSight* far outweighs its disadvantages, and makes it a good value. — *Robert R. Wiggins*

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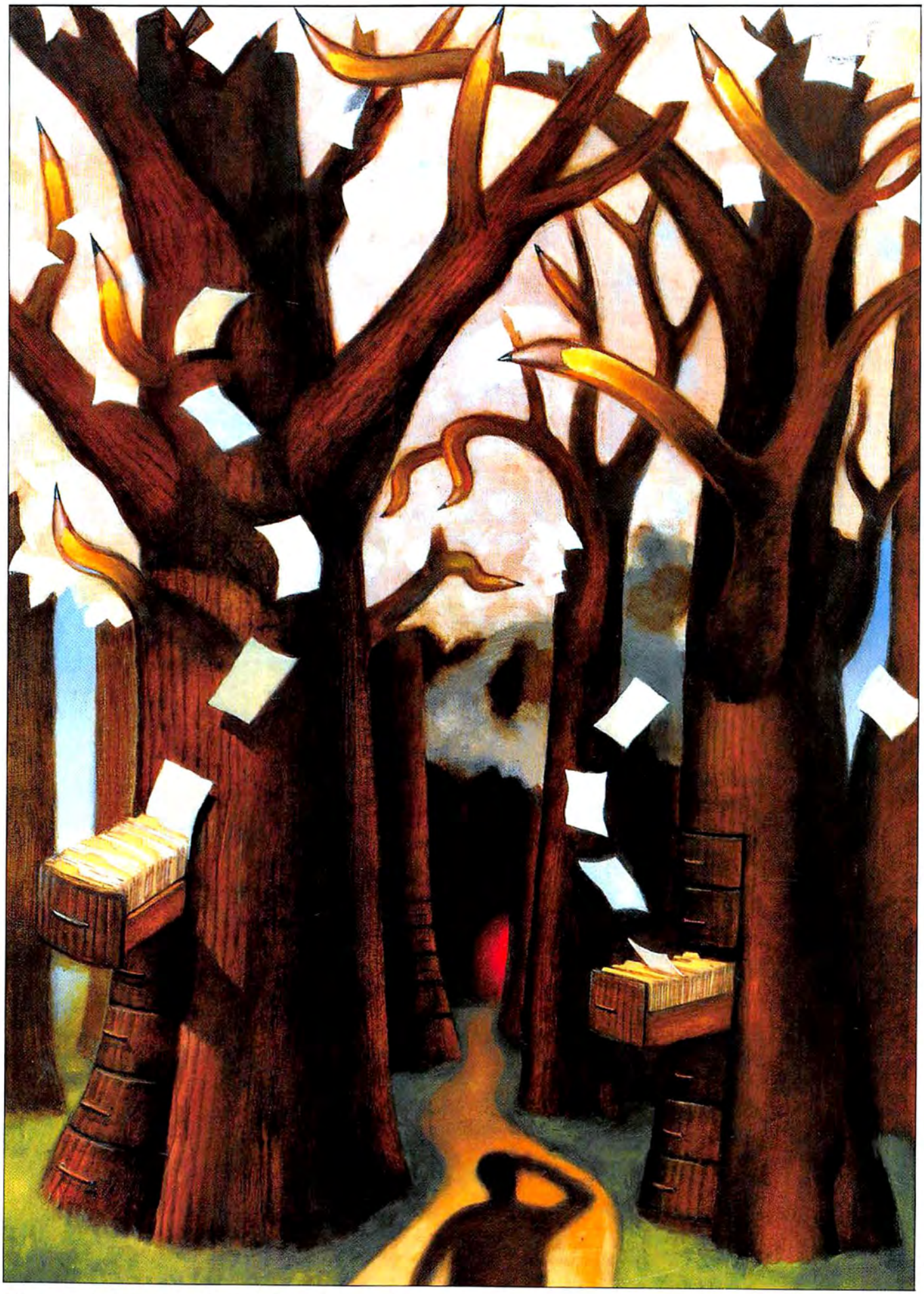
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KIM DREW

BY ALL ACCOUNTS

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CPA: You've come to the right place. I have just the thing. It's called *Insight*.

Well, I, uh, know you're probably pretty good at what you do, but what's the accounting package called?

That's its name, it's called *Insight*. It's by Layered, Inc. And right now they have two modules available: Accounts Receivable and General Ledger.

The *Insight* Accounts Receivable package includes a program disk, system disk, demonstration disk, and an on-line demonstration disk, along with extensive documentation.

What versions of Macintosh does the program work on?

A 512E with 800K drives, a Mac Plus, or any configuration with a hard disk. *Insight* works better on a Mac Plus with a hard disk. I recommend a hard disk because you're going to need the space to save your customer and item data, and sales and payment transactions.

Does that mean I can't use a plain 512K with 400K drives?

I wouldn't recommend it; *Insight* Accounts Receivable requires space on each of two 400K disks leaving very little space for data. It does work fine on a 512K if you're using a hard disk drive with it.

Is *Insight* difficult to use?

If you're familiar with standard Mac conventions, you'll know how to use *Insight* after only a short time working with it. You'll find that you will retain what you have learned because *Insight* is logically designed. [*Editor's Note: Pam is being modest here. The superb documentation is a big help. She wrote it, and so we reviewed it separately here at the editorial offices. Its five-mouse rating is ours, not hers.*]

Tell me more.

***Insight* has its own desktop with a Palette whose icons you click to open the windows listed on the Forms menu. You can open several windows at once, such as the invoice window and the ledger card and ledger notes window, and do things in one window that affect data in another window.**

What does the Accounts Receivable module allow me to do?

***Insight* Accounts Receivable is a double entry accounting system that accepts information about sales transactions by invoicing or by entry onto a sales journal or ledger card, and distributes the amounts to the proper general ledger accounts. It also accepts information about payments and distributes the cash to the proper general ledger accounts.**

It sounds like a standard accounting system. What's so special about it?

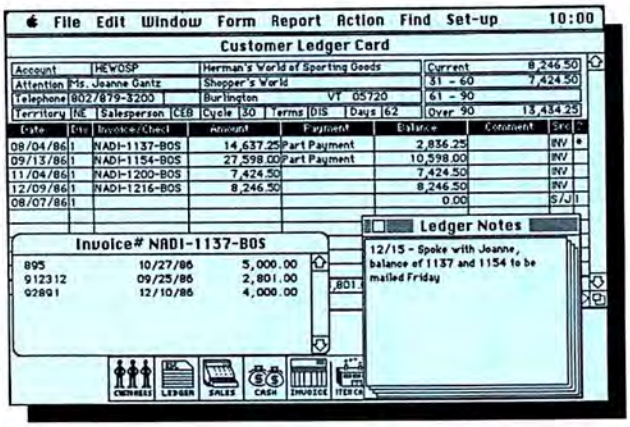
***Insight* does what most systems do, but it's the way *Insight* does it that makes the difference. Layered has designed *Insight* to reflect the way people work. You can have several forms and reports on your Macintosh desktop at once and watch as a change affects another form or information in another window.**

Also, once you or your accountant set up the sales accounts and cash accounts and then code items and services with those account numbers, *Insight* does the distribution. There is little if any redundant data entry because *Insight* checks each customer, item, division, bank account, sales representative, territory, tax jurisdictions, and finance charge to make sure it isn't already on file. Once you have entered information you can use the help lists shown on the Find menu to quickly locate and select information.

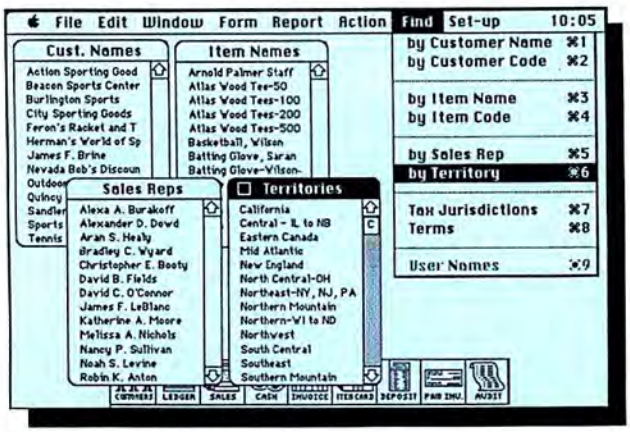
And that's only the beginning. Those are merely data entry, sales entry, and payment entry features. *Insight* has something called *expert reports*.

BY PAMELA J. ROTH

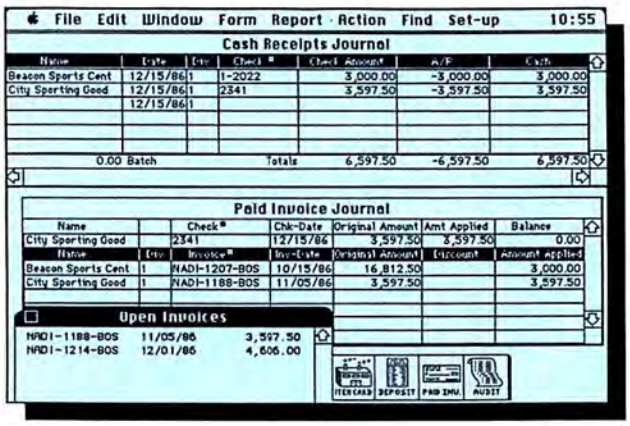
BY ALL ACCOUNTS



Insight allows you to open several windows at once. What you do in one window will affect data in another.



Once the information is entered, the Find menu lets you access it easily and quickly.



Setting up an account as an open item customer will allow you to credit partial payments, or apply a payment to more than one invoice.

How are expert reports different from regular accounting reports?

***Insight* helps you manage your collection efforts. It creates bar and line charts so that you can see at a glance the status of your receivables. All you need to do is select the desired expert report from the Report menu.**

What are some of the other expert reports that *Insight* produces?

***Insight* uses line charts to show the accounts receivable history, accounts receivable by aging category, sales, cash in, and collections trends. In addition, *Insight* uses a bar chart to show cash projection for open item and balance forward customers. *Insight* projects cash based on the cycle that the customer actually pays within.**

I like that....now what about invoicing and statements?

Depending on the type of business you run, you choose from three invoice types: shipping, standard, and service. Layered suggests that you use the shipping invoice for manufacturers, distributors, or other organizations that sell products and initiate a sale through a sales order processing system.

Similarly, the standard invoice is for service organizations and distributors who sell from stock and have no need for sales order or back order information. The service invoice is for organizations that need more free-form description area.

Can I enter information the same way on any of the invoices?

Yes. Of course, the information varies on the invoices, but the entry procedures are similar, which is nice.

When entering invoices you can select information from customer name and customer code lists. *Insight* picks up information from the customer information card, but you can change the bill to name, territory, sales representative and other information for that invoice. And, you don't need to remember codes for territories, sales representatives, or print out a list and risk typing in an incorrect number. Simply use the Find menu and click the correct information on the list that appears.

Does *Insight* do any checking? What calculations are performed?

***Insight* does automatic pricing based on different discount levels. *Insight* checks the credit, if you have set up that feature. And it calculates sales tax, commissions, extensions and totals. Also, *Insight* will automatically assign invoice numbers, if you so choose.**

What next?

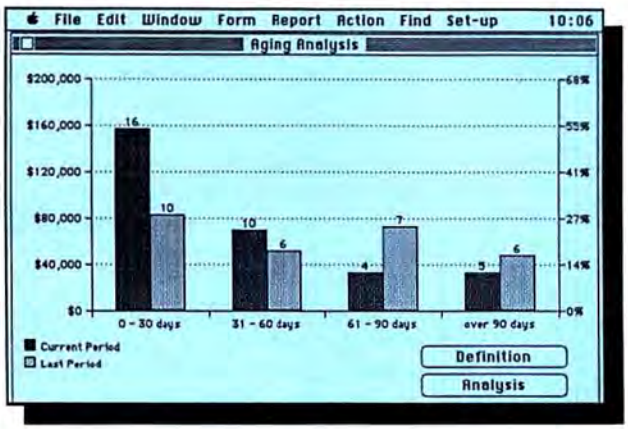
***Insight* posts sales and cost of sale amounts to the general ledger....**

How do I enter payments?

You can use the cash receipts journal to enter checks or cash and post cash to multiple banks. You can also enter payments directly on a customer's ledger card. The batch entry feature allows you to enter a batch total and compare it with the total



General Ledger puts together financial report data from Accounts Receivable and its own journals.



This aging analysis graph is an example of *Insight*'s expert reports feature.

cash entered before posting the cash receipts journal. That way you can make changes on the cash receipts journal. Any errors you don't catch before posting can only be corrected by making an offsetting entry.

What if I receive a partial payment? Will *Insight* accept it?

If the customer is set up as an open item customer, then *Insight* will allow you to apply the payment when it doesn't pay the invoice in full, that is, make a partial payment. You can also apply a check to more than one invoice.

What about end-of-period closing?

There are procedures for closing at the end of each month and at the end of the year. Sales history amounts are cleared, paid invoices for open item customers are removed, and a beginning balance is established for balance forward customers. In addition to telling you how to close, the documentation provides suggestions for what to do before closing.

You mentioned expert reports, what type of standard reports do I get?

Accounts receivable aging, credit limit, sales history, sales commission, and sales tax reports, as well as customer lists and labels, ship to lists, and item lists. You can get reports in any order. The AR aging report comes as a summary, detail, or exception report.

You mentioned that basic information has to be entered — how do you do that?

Layered has created a series of questions and grouped them by type as shown on the Setup menu. Before answering the questions you need to think about your accounting methods. Although Layered provides a couple of examples, there are so many different choices that it's a good idea to have your accountant and bookkeeper do the set up if you want to get the best use of this system.

What if I want to use only some of *Insight*'s features?

You are not required to use all the features—only the ones that you need. And, you can go back in later and start using other features. However, there are some "musts."

Oh? For example....

For example, if you want to apply payments from a customer to different invoices, you must set up that customer as an open item account. You can assign all customers as open item or balance forward. The method is first to know what you want and then to find out how to do it in *Insight*.

Ok, let me see if I've got this straight...I set up the features I want to use in the first setup, then I complete the information and answer the questions in the other setups according to the features I have selected in the business setup. Right?

Right. Then you fill in a customer card for each customer and an information card for each item or service.

Then I can enter sales transactions and payments. If I do invoicing, I complete an invoice for each sale or I can enter transactions onto the ledger card or onto the sales journal. For payments I can enter payments onto the cash receipts journal or ledger card. At any time I can look at the ledger card for any customer.

If I set up the distribution feature, sales and payments will be distributed to the proper general ledger accounts. I can print reports, use the expert report feature to get an overview and detailed information about my receivables history and cash projections. I can transfer information from reports to any Macintosh program that reads an ASCII text file.

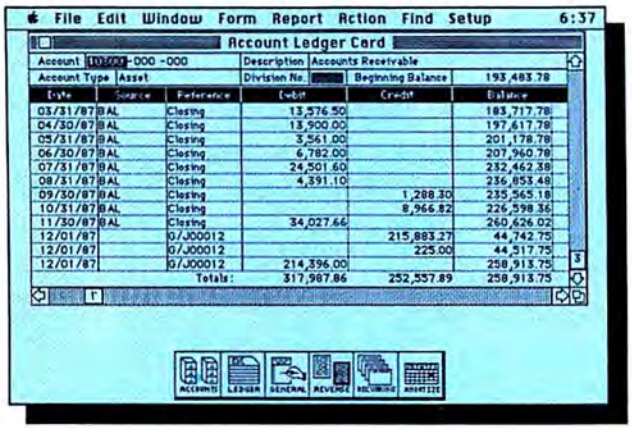
I can also print and send statements and, as needed, change the features I originally set up to reflect changes in the way I do business. I can close at the end of a month and at the end of a year.

You've got it. Let's move on to the General Ledger module. Since you understand Accounts Receivable you already have a good understanding of how General Ledger works.

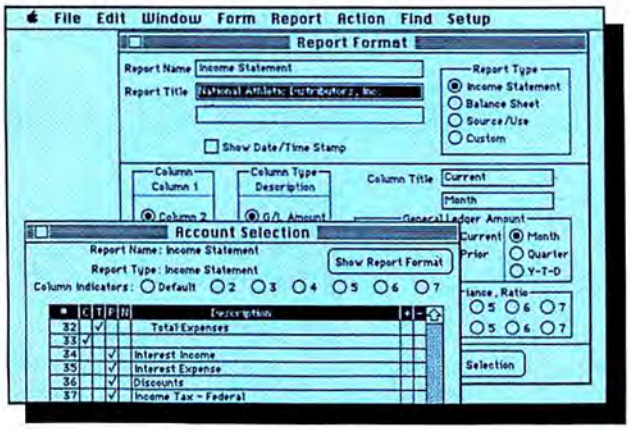
What exactly does General Ledger do?

General Ledger compiles data for financial reports by receiving data from Accounts Receivable and accepting entries into its general journal, recurring entries journal, auto-reversing entries journal, and amortization

BY ALL ACCOUNTS



All Receivables transactions are posted to account ledger cards, showing the current status of each account.



Formatting financial statement reports is merely a matter of a little typing and clicking.

entries journal. Then, just as Receivables has a ledger card window through which you can view the status of each customer's account, General Ledger has an account ledger card window through which you can view the status of each account.

You can create income statements, balance sheets, and customized reports through a report formatter that creates reports of up to 6 columns. You can also create summary, detail, and working trial balances. And, you can view 12 different financial statement ratios and plot any financial statement.

There are five setup procedures, significantly less complicated than Accounts Receivable. The first is the business setup, which will look familiar, with questions about whether you have divisions, profit centers and department, and whether or not you want to use the password feature. Other questions ask for the number of accounting periods, date that you begin your fiscal year, journal source codes, and net profit and retained earnings account numbers.

If you have divisions, profit centers or departments, you fill in information about each in the setup windows provided and listed on the Setup menu.

How difficult is it to set up the chart of accounts?

Not difficult at all. Of course, you must plan it and, again, I suggest you work with your bookkeeper and accountant to get the best setup.

Once you have entered setup information, you build your chart of accounts in the account information window. *Insight* includes a feature for duplicating account information so that if you have more than one division, department or profit center, you can set up the account structure once and duplicate it, then modify it as needed. This saves a great deal of repetitious work and helps minimize typographical errors.

Insight will calculate your budgets for you based on your current budget or last year's budget. As with any report you can print the chart of accounts on an ImageWriter or LaserWriter or view the report on the screen.

What about all the transactions I already entered through Receivables?

General Ledger posts those amounts to the account ledger cards.

Then I can make changes to entries that came in through another module?

Yes.

How flexible is the trial balance?

Insight General Ledger produces a summary, detail, and working trial balance. The summary shows one line for each account, which includes beginning balance, debits, credits and ending balance. The detail trial balance shows all transactions for each account during the reporting period that you select. This means everything on the summary plus the source and the reference. The working trial balance, which is for you to use as a worksheet, shows the opening balance for each account.

Trial balances are all selected through one screen of instructions, which is similar to other instructions used to print reports from *Insight*. Financial statements, on the other hand, are more flexible reports and require the use of *Insight*'s report generator.

General Ledger also provides expert reports?

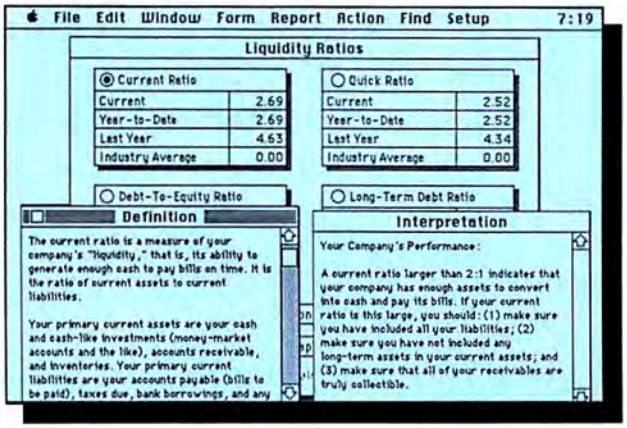
Yes, in the form of liquidity ratios (current, quick, debt-to-equity, and long-term debt), profitability (return on equity, return on assets, operating margin of profit, and gross margin), and asset management (inventory turnover, days sales in inventory, average AR collection days, and average AP payment days). You can also print pie charts of your financial statements.

And if I understand expert reporting in Accounts Receivable, I'll be able to figure out how to use GL's expert reporting?

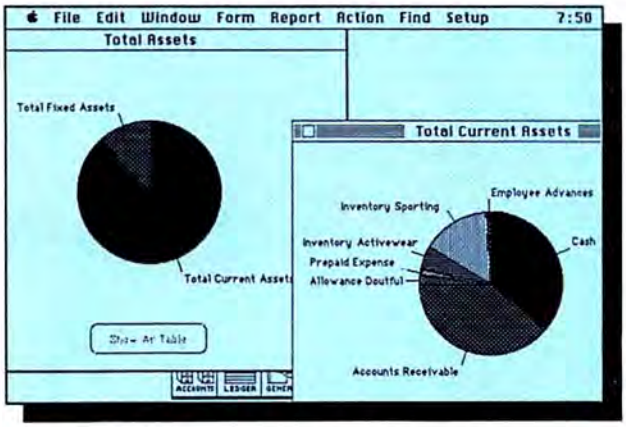
Yes, you click radio buttons to get a definition and interpretation in narrative form, an analysis showing a breakdown of the formula used, or a chart of the ratios. You can set up and see two levels of a pie chart and view the information in table format. Layered ships *Insight* with interpretations of distribution, manufacturing, and service industries.

Any questions?

What about copy protection?



Liquidity ratios are one of the expert reports generated by the General Ledger. You can also get pie charts of financial statements.



There isn't any — you can make backup copies and store the master disks away for safe keeping.

What type of support is Layered offering? What is their upgrade policy?

You can get on-demand service for which they charge $60 an hour, which comes out to about $10 to $15 per call. Extended service is $125 per year and gets you 10 hours of telephone service. Preferred customer service is $350 per year for unlimited telephone service.

All registered customers get bugs fixed free and a discount on new releases that improve functionality. As of press time, the amount of the discount has not been decided.

When will other modules be available: Accounts Payable, Payroll, Inventory Control, Sales Order Processing, Sales Analysis, Fixed Assets, Time and Billing?

Layered plans to have Accounts Payable out by the time this article is published. Inventory is scheduled for January 1987, Payroll and Sales Order Processing in April 1987.

You've been very positive about these accounting packages — are there any drawbacks?

I like what I've seen. These two modules are very good. For the most part, they work the way businesses operate. They incorporate accepted and real world accounting practices. *Insight* requires that you place default accounts first, although some businesses don't operate that way. And, it would be nice if the cash accounts and sales accounts setups were placed together in Accounts Receivable. I understand that Layered plans to do that in another release.

Retailers might be disappointed to find that Accounts Receivable is not intended for point of purchase businesses. Any transaction entered through invoicing requires a second entry to mark it paid, which means double work for the retailer.

Setting up the books for a company other than the one you are working with — or when you try the demonstration — can be a bit confusing because it's called "changing the company" rather than "opening" the company, which is standard Macintosh terminology.

Do keep in mind that if the number of accounts gets very large, the program slows down, and companies looking for really large accounting systems should look for programs specifically aimed at them.

The only major problem encountered so far was created by a bug in versions of Apple's *System* file lower than 3.2. So if you are using a Mac Plus, make sure you use *System* 3.2 or higher.

Other than that, *Insight* is a strong package. It's a serious accounting package and should be set up with the help of a bookkeeper or an accountant. If you are a small organization that does not plan to grow very much, *Insight* might be too much for you, that is, too many features and too high a price. You can get accounting packages for less money that aren't as easy to use and don't have the added benefit of expert reports.

***Insight* is fairly easy to learn. And, once you've learned it, it's very easy to use. Any more questions?**

No, you've answered everything for now. Thanks for your help.

PAMELA J. ROTH IS A BOSTON-BASED TECHNICAL WRITER AND DOCUMENTATION AUTHOR. SHE WROTE THE INSIGHT DOCUMENTATION, BUT IS NOT ASSOCIATED WITH LAYERED AND DOESN'T RECEIVE ROYALTIES ON THE PRODUCT.

INSIGHT

	5	8	6	7	$
Overall Rating	■	■	■	■	□
Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	■
On-Screen Help					None
Performance	■	■	■	■	□
Suppport	■	■	◪	□	□
Consumer Value	■	■	■	■	□

Comments: High-powered Accounts Receivable and General Ledger modules for small to medium-sized businesses. **Best Feature:** "Expert" reports that go beyond normal accounting package functions. **Worst Feature:** Too expensive for small companies, not powerful enough for really large companies. **List Price:** $595 per module. Runs on a 512 with external disk drive, but a hard disk is necessary for practical work. Published by Layered, 85 Merrimac Street, Boston, MA 02114. (800) 262-6620. Not copy protected.

A MAC OF ANOTHER COLOR

BY NEIL L. SHAPIRO



The Apple IIGS features color Graphics and Sound. What should we Macintosh owners make of this new machine?

CHRIS STEVENS

I MOVED A WINDOW AROUND ON-screen, resized it, played a bit with the scroll bars and then moused up to the menu bar. I clicked on the Color menu and pulled it down. Displayed were 16 different colors, each one a solid bar of color right across the menu space — looking for all the world like those bright chiclets of color pigments in a child's watercolor set. As I moved the mouse, each of the colors highlighted one after the other. All I would have to do was to choose and the resulting graphic demo would be displayed in the color of my choice.

It was beautiful, it was color, it was real, it was an Apple computer.

But it wasn't a Macintosh.

ANOTHER PART OF THE ORCHARD

I was using Apple's newest computer, the Apple IIGS. This latest addition to the Apple II family of computers features a 16-bit processor, color graphics, and the capability for a Mac-like interface style of programming and program design. Does this mean that Apple now has somehow decided to do what very few other computer companies would care or dare to do — compete with the Apple Macintosh? Does the right hand at Apple know what the left hand is marketing?

As it turns out, the Apple IIGS complements the Macintosh product line rather than competing with it. And, the design and product placement of this new computer proves once and for all that both right and left hands at Apple are now working together in perfect harmony.

But before we start explaining what the new machine means for all of us who own Macintoshes, and what it implies about the new Apple Inc.'s corporate workings, let's take a quick look at the interior and some of the technical specifications of this colorful new Apple blossom.

First thing to note about the new Apple IIGS is that it looks neither like a Macintosh nor like one of the older Apple IIs. It has its own, unique design and "look."

The system unit, which contains the motherboard and the power supply, is a boxy-looking enclosure. It has a small footprint, thanks to the fact that the power supply "floats" over the left side of the board. The detached keyboard looks very similar to the keyboard on the Mac Plus and features 80 keys including cursor direction keys and a numeric keypad. The monitor is styled to match the system unit. The computer will accept either a 3.5-inch 800K drive (which looks like the drive on the IIc rather than the one on the Mac) or one of the older 5.25-inch Apple II drives.

There are a number of built-in ports on the system unit itself. There are two serial ports, each of which may be configured for various serial devices such as modems and printers.

There is a disk port from which the 3.5-inch drives may daisychain. There are also two video outputs: a composite video output and an RGB output. (This is an analog RGB output, not the digital variety of RGB.)

All the units are in a new color that Apple calls "platinum" but which my mother taught me to call "light gray." But by any name it is a handsome, high-tech color.

When you swing up the top of the system unit and look at the motherboard you see seven I/O slots, much like in the Apple IIe. These slots will accept the various peripheral cards now made for the Apple line by both Apple and many other manufacturers.

This is the first hint of the amazing compatibility features Apple built into the machine. The Apple IIGS will accept almost every card ever made for an Apple II computer. It will also run almost all of the software that the Apple IIe can utilize.

A good portion of this is due to Apple's choice of CPU for the Apple IIGS — a Western Digital 65SC816. This is a 16-bit microprocessor with a 24-bit address path. The CPU also features two clock speeds and complete 6502 emulation.

The 6502 is the older 8-bit CPU that Apple IIc's and IIe's are based upon. So, when you use the IIGS to run Apple IIe software the 16-bit CPU gives itself somewhat of a cybernetic lobotomy and turns into, for all intents and purposes, an 8-bit 6502 machine. And it also slows down from its normal 2.8 MHz speed to the older 1 MHz speed.

Also on the motherboard are nine new LSI (Large Scale Integration) chips that Apple designed especially for the IIGS and which govern the various features of the computer. While their complete description is beyond the scope of this article, suffice it to say that the chip count in the IIGS is surprisingly small given its power and capabilities.

Present are game/joystick connectors, headphone jack, sound in and out, and the keyboard and mouse connectors (part of the new Apple Desktop Bus standards). There's also a built-in clock feature.

Before we lower the hood and look at the screen display we do need to examine one chip in depth. It's called the DOC chip which stands for "Digital Oscillator Chip." It's the one with the name "Ensoniq" emblazoned on top. The Ensoniq Corporation is very famous in the world of music for its digital synthesizing devices and equipment. This particular chip contains 32 oscillators for up to 15 voices. It also has "sampling" ability so that a circuit could be offered to record sounds or voices to be played back and modified by the chip's ability to work on waveforms. It's the DOC that puts the S in the GS's Graphic and Sound abilities. Now, how about those graphics?

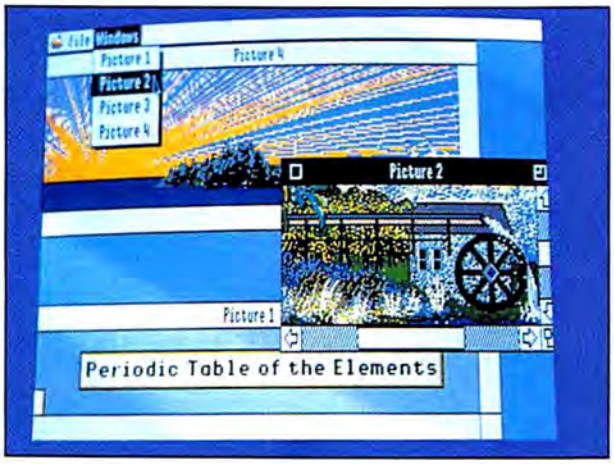
GRAPHICS AND TEXT

The Apple IIGS has seven video modes. There are two text modes (40 and 80 column) which, under

A MAC OF ANOTHER COLOR



Color! The Apple IIGS' Super-Res graphics modes offers a choice of 4,096 colors. In the 640 Super-Res mode (shown here) there may be up to 4 separate colors on every scan line so hundreds of colors may be shown on screen.



The Apple IIGS shares many of the same ROM routines as in the Macintosh. This enables easy programming of such things as windows, pulldown menus and many other Macintosh interface techniques.



The Super-Res graphics mode should prove very popular and there will be many ways to take advantage of its capabilities to draw artwork as shown here. One of the first programs to be released for the IIGS is planned to be a *MacPaint*-style program with full color support.

analog RGB video, can be quite colorful. The text screen is divided into three areas: text, text background and border. Each of the three may be displayed in any of 16 colors on an analog RGB monitor. (Composite video results in shades of gray scale.)

The Apple IIGS shares all of the three graphic modes possible in earlier Apple IIs. Lo-Res (40 X 40, 16 colors), High-Res (260 X 192, 6 colors) and Double-Res (560 X 192, 16 colors) are all fully supported.

To this the Apple IIGS adds Super-Res which, itself, is available in two "flavors." The 320 Super-Res graphics (320 X 200) may access 4096 colors with up to 16 of those colors appearing on each scan line. The 640 Super-Res graphics (640 X 200) may also access from a choice of 4096 colors but with only 4 colors appearing on each scan line. This means that up to 256 colors may be on-screen at one time. The 256 on-screen colors may be displayed at the pixel level next to each other so that, like on the Sunday comics page, the eye can visually mix these colors to obtain even more possibilities, at the expense of some resolution. (This process is called "dithering.")

The 640 Super-Res graphics are the most important from the standpoint of bringing the Macintosh interface to the Apple II line, but more on that below.

DOING IT LIKE THE MAC

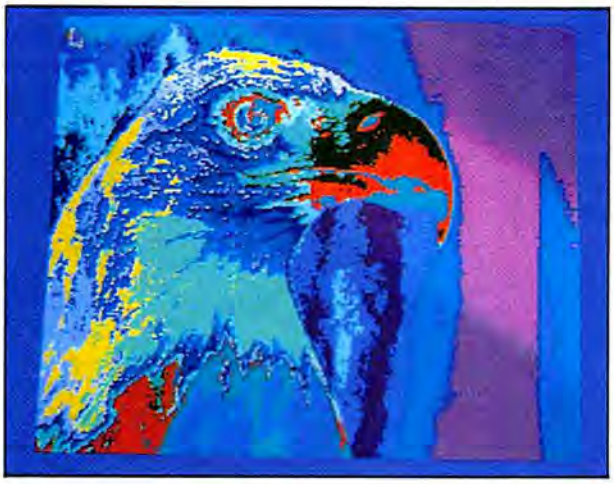
If you are a Macintosh developer you are probably familiar with *Inside Macintosh*, a vastly large publication which lists all of the Mac's various ROM calls, tells how they can be utilized, and which explains the user interface techniques that should be standard to every program. People who were developing programs for the Apple IIGS back when it was code-named the "Cortland" already have 11 huge, loose-leaf binders crammed with information. This *Inside Cortland* information will shortly be released to all (and probably retitled to *Inside the IIGS*).

As it turns out, *Inside Macintosh* and *Inside Cortland* are very, very similar in many areas. This is because many of the Mac's built-in ROM routines were also built into the Apple IIGS.

Just like in the Mac, there is a Toolbox inside the Apple IIGS. Many of the Tools will arouse feelings of *deja vu* in anyone who knows the Mac. While in the Mac all of the Tools are in ROM, presently some of the Apple IIGS' Tools load into RAM but they work the same way.

The Memory Manager Tool, as in the Mac, allocates memory and "handles" memory requirements. All programs, desk accessories and the operating system depend on the Memory Manager to find the memory they need when they need it. Programmers, as on the Mac, will have to learn about things like handles and pointers to use this Tool properly.

QuickDraw II is very similar to



One of the more glorious of Apple's demo programs for the Apple IIGS was written by Apple programmer Eagle I. Berns. I wonder why he chose this noble bird to color?

the Mac's own QuickDraw routines. Just as on the Mac there are ROM calls to quickly do such things as draw lines, polygons and circles, fill areas and do dozens and dozens of such graphical feats. And, of course, the Apple IIGS' color routines are completely supported.

The Window Manager is present. This allows the programmer to simply call existing routines to make on-screen windowing relatively simple to achieve. Likewise, the Dialog Manager helps in creation of dialog boxes and the Control Manager will allow the programmer to instantly create such things as buttons and check boxes, scroll bars and other mouse-activated controls.

The Apple IIGS also calls for "event-driven" programming just as does the Macintosh. This is not like programming an IBM computer where the user can only do certain things at certain times of the program. Rather, there are events such as mousing to a menu which the user can do anytime during the program. So the program must be written so as to watch for these events and to respond to them whenever the user triggers such an event. Of all the concepts involved in learning how to program the Mac, and now the IIGS, this one will give the most programmers from older backgrounds the most problems in comprehension. Until a programmer truly understands that the user is in charge of the program it will be difficult to master the technique. Obviously, when mastered, the rewards are great.

Development languages and techniques for the Apple IIGS are still firming up. While they are much more advanced than were comparable techniques for the Mac at the time of that introduction (Apple is learning!) they are still not complete.

CPW (Cortland Programmers' Workshop) so far has a prerelease C compiler and the Pascal is rumored to be coming along and might be available by the time you read this. There is a 65816 assembler based on the *Orca/M* program.

It seems certain that other, more consumer-oriented high-level languages will also soon be available. We have heard unsubstantiated rumors (isn't this fun?) of everything from icon-oriented, building-block programming to compiled BASICs with full Toolbox access.

IS THE MAC STILL THE MAX?

At first glance it almost appears that the Apple IIGS and the Macintosh are in competition. After all, the IIGS features many Mac-like capabilities. As we've seen above, it even features many of Mac's own built-in routines. And it has color.

But it is not competition. Rather, it is a melding of product lines, a coming together — a focusing — of corporate and technological vision.

While the Mac interface on the Apple IIGS makes that machine a much nicer choice to use and to program on than many other new computers, it is not up to the Mac in terms of power, speed and overall usability.

For example, the Mac interface on the Apple IIGS requires use of the machine's 640 Super-Res graphics. When in that mode everything, from text to dialog boxes to graphic output, is drawn to the screen; just as text is now considered to be drawn to the Mac screen. On the Apple IIGS we may soon see such things as dialog boxes with colored buttons (*Don't* press the red one!) as well as mixing fonts with graphics featuring hundreds of colors.

But compared to the Mac's bit-mapped screen, the 640 Super-Res text cannot appear as crisp, as clear, as defined and as readable as can text on the Macintosh. Keep in mind that the original reason that the Macintosh was designed as a black-and-white computer is just as valid today as it was then. The resolution of a black-and-white screen can be made much higher than on a color screen given the same money to spend on monitors.

Then there are the speeds of the II machines. The older Apple II plodded along at a pace of 1 MHz clock rate. The new Apple IIGS goes at 2.8 MHz (actually 2.5 MHz after some system requirements are met). This is quick, but it isn't speedy.

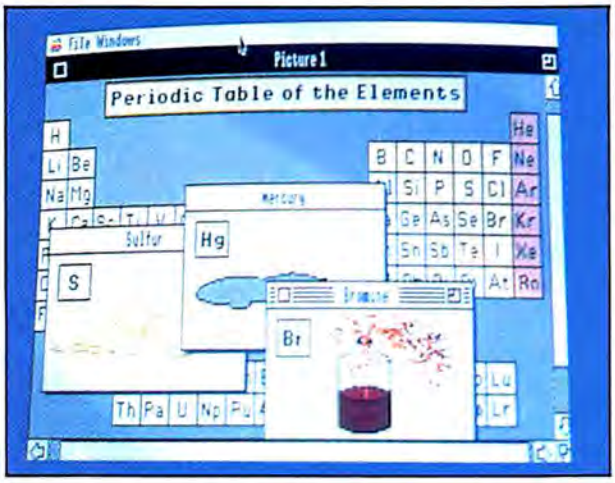
If you are interested in desktop publishing, spreadsheets, word processing — the Macintosh will still be the top of any line. While the Apple IIGS will be able to do all of these things, and may even do them with a mouse and Mac interface, on the Mac the display should prove to be better and the speed much faster.

So, for business, the Macintosh is still the world's premier microcomputer system.

There will, however, be some areas that — in the short run — may be "taken over" by the IIGS. The most obvious area is education. Right now the Apple II is a standard machine in many schools; but schools have been wondering when Apple would upgrade to a more powerful, but still affordable machine.

The Apple IIGS will fit right in with most school curriculums thanks to its Apple IIe compatibility. And, thanks to its new graphic and sound abilities, upcoming programs for education should be very exciting.

A MAC OF ANOTHER COLOR



Windows opening over windows, layer upon layer of information: The Apple IIGS' screen can get just as chockful as a Mac's! Of course, as always, it will be up to the user to make the most of the power.

It will also not hurt that Apple has announced a $499 upgrade from the IIe to the IIGS (beginning in January of 1987). Many schools will likely take advantage of this offer.

Beyond schools, many at-home uses would be enhanced by the addition of color even though there is a loss of text resolution and processing speed compared to the Macintosh. Even some small businesses might want to opt for the IIGS.

But the real question we should be asking ourselves is not what are the relative positions of the machines today. It is, rather, what are the consequences of this introduction for the coming months, even the coming years?

DO GetFuture

Back in 1984 and 1985 there appeared to be two Apple Computer Inc.'s existing under one corporate roof. The Macintosh division and the Apple II division were separate all along the line. Different people designed the computers, different teams supported them, different departments marketed and funded them.

It was no secret that the Macintosh was then-CEO Steve Jobs' special baby. Apple seemed to be lavishing attention on Mac development while neglecting the Apple II. While, from our standpoint as owners of the Macintosh computer, that hardly seems a terrible thing to do — think about it for a moment like an Apple stockholder.

The Apple II was, and still is, accounting for a very big percentage of Apple's sales and their market share in personal computing. No matter how powerful the Macintosh was (and is) they could not afford to lose that segment of the market. But the Apple II was clearly becoming antiquated.

So, through a series of boardroom maneuvers such as are often chronicled on soap opera TV programs, Steve Jobs was moved from the CEO position and John Sculley stepped in to take over the reins. (Jobs would later leave the company he had founded along with Steve Wozniak.)

One of Sculley's first moves was to totally and clearly revamp the double-headed Apple Corporation into one lean, corporate machine with one obvious goal — to design and market all Apple-branded computer systems. At this point development on the Apple IIGS began in true earnest.

Now that the Apple IIGS has been released it is clear that Apple Computer should be able to hold onto, and even expand, their complete market share of the personal computing field.

Beyond that, the way the two machines complement each other is truly an interesting topic. Keep in mind the similarities in the Toolbox calls and programmability.

Right now the education market in Mac software is, frankly, pretty sparse. I expect that as the Apple IIGS generates interest among programmers we will first see an explosion there of educational programs featuring such things as pull-down menus, mouseability and other Mac interface characteristics. Following that, I would expect to see many of these programs "ported" over to the Mac.

The net effect of the Apple IIGS assault on the educational market, from the Mac standpoint will be an increase in the Mac's own educational potential.

From the Apple IIGS standpoint, the present wealth of Macintosh software should offer a fantastic starting point. Many Mac programs will be able to be ported over to the Apple IIGS with only minimal effort. Thus, we should see the Apple IIGS having more software near to its introduction than any other new computer system has ever enjoyed.

I think that we will see more and more software houses devoting themselves to both the Mac and to the Apple IIGS. While individual parts of each program may be best on one machine or another, we will see the general overall quality of the software for both machines improve.

The realm of hardware compatibility even between the two machines will also be very important. For example, with the addition of an inexpensive interface card, the Apple IIGS is able to use Apple's new SCSI hard disk drive. Other manufacturers are reportedly planning to design drives that will be able to network with both Apple IIGS's and with Macs, or even direct connect to both at once. Monitors, printers and many other devices will be compatible between the two machines.

If the law of supply and demand holds true, I think we can expect to see many peripherals for the Macintosh becoming cheaper thanks to the widening marketplace for those peripherals. The most thankful of all toward the Apple IIGS may prove to be a Macintosh user's wallet.

The Apple IIGS is a fine addition to Apple's line of computer products. It may also prove to be an unexpected, but welcome, impetus to further Macintosh-specific developments.

NEIL L. SHAPIRO IS EDITOR-AT-LARGE FOR MACUSER AND CHIEF SYSOP OF MAUG.

Trying to stay alive makes these programs killers.

Examine	Open	Close	Speak
Operate	Go	Hit	Consume

Go where computer adventures have never gone before. But you've got to be careful.

Deja Vu: A Nightmare Comes True™ and Mindscape's new *Uninvited*™ put you in the kind of tight spots that make droplets of sweat appear on your mouse.

MacUser Magazine and the Software Publishers Association both named *Deja Vu: A Nightmare Comes True* the best entertainment software program for 1985. And they had good reason.



Point and shoot. Just click OPERATE, your weapon, and your target.

With close to a megabyte of involving graphics to manipulate with the ease of a mouse, you're free to do your detective work. Not that your problems are simple. You've awakened in a drug induced stupor with the police and a gruesome gang of hoods on your tail. To make your plight worse, you don't remember who you are.

So you've got to be on your toes. Grab your mouse. Aim your .38. And deter a threat without wasting time.

Examine	Open	Close	Speak
Operate	Go	Hit	Consume

Examine the newest Mindscape thriller. It's not a sequel. But it is sensational.

Uninvited lets you take a terrifying journey of fear through the eerie confines of a dark, mysterious mansion. *Uninvited* really goes bump in the night with full digitized sound.

Animation puts the locals, a collection of demons and specters, in an exciting new light as they step out of the shadows. It won't take long for you to discover that they prefer not to have house guests.

You've got quite a mystery to solve. And your hide to save. So don't wait for a formal invitation.

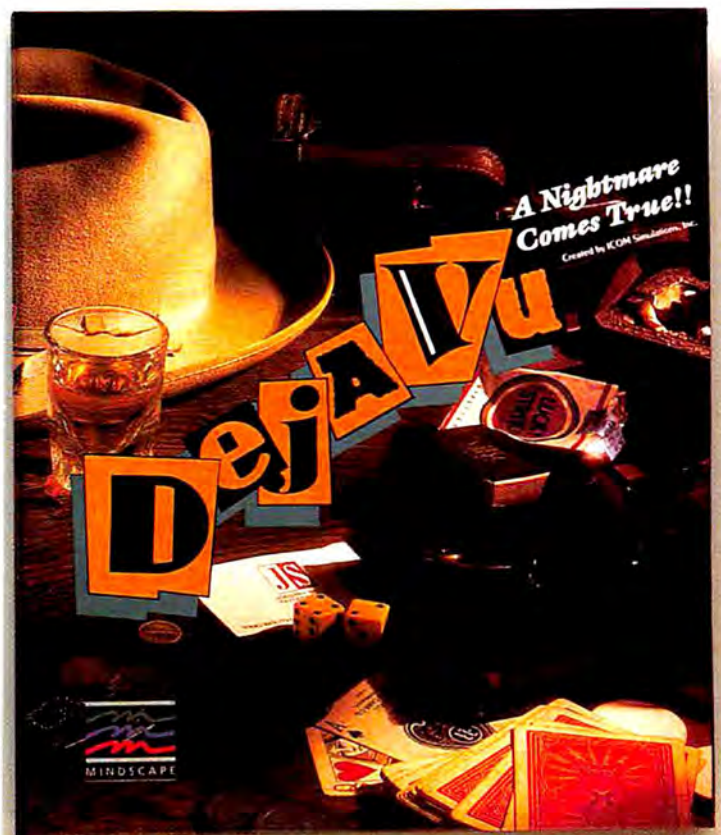
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Operate	Go	Hit	Consume

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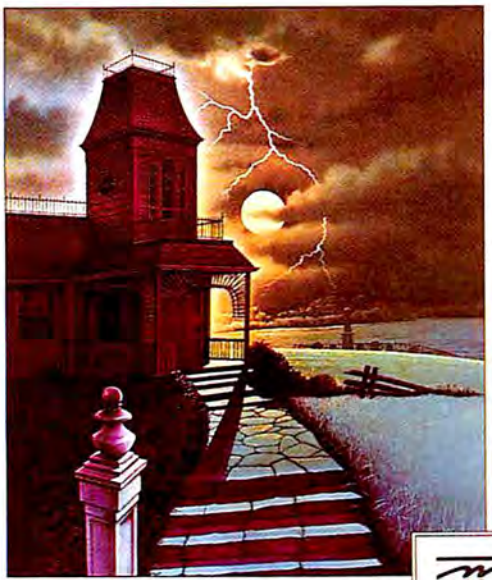
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STAT'S THE ANSWER



StatView 512+ converts raw data into useful information.

BY TERRY A. WARD

THE GOAL OF STATISTICS IS TO give meaning to the masses of numbers that make up data. The intent is not merely computation, but comprehension. And the *StatView 512+* statistical analysis program from BrainPower provides the tools needed to understand virtually any set of data.

StatView 512+ is supplied on two disks, is not copy protected and requires a minimum of 512K of RAM and 800K of disk space to operate. This disk space may consist of two 400K drives, a single 800K drive, or a hard disk. If you are using either of the higher capacity drives, *StatView 512+* provides a means of joining the various files together into one application which occupies 532K of disk space.

StatView 512+ holds all data in a spreadsheet-like form. The columns represent variables (such as age, weight or gender) and the rows represent cases of analysis (such as individuals).

Columns are assigned as X (independent) or Y (dependent) variables and analyses are chosen from the pull-down menus. Two general categories of analysis are available. The Compare menu provides comparative statistics and the Describe menu provides descriptive statistics. In addition, a set of graphic display procedures is also available.

The overall look of a *StatView 512+* dataset and the general screen look of the program is shown in Figure 1. In general, operation of *StatView 512+* is very intuitive. For example, I was able to delete a column of data by using the intuitive sequence of selecting the column by clicking and then using the backspace key to delete the column.

This doesn't mean that the documentation is poor or that you should not bother to read it; in fact, it is an excellent guide to the features of the package. *StatView 512+*, like all good Macintosh software, closely follows the guidelines for the user interface.

LOTS OF DATA

The size of a dataset allowed in *StatView 512+* is limited by the available RAM. The more RAM available, the larger the dataset can be. On a Mac Plus with 1 megabyte of memory, with all desk accessories closed and with RAM cache turned off, I was able to perform analyses (including a complicated regression analysis) on a dataset composed of 10 variables and 10,240 cases. According to BrainPower, the absolute maximum size of a *StatView 512+* dataset is 32,765 rows by 8192 columns. Part of the speed of *StatView 512+* is obtained by keeping all of the data in RAM at all times.

Keeping all the data in RAM can cause problems, especially when entering large datasets. You don't want to find out that you're out of memory after the fact, and before you can enter the last few items. And you need to remember to save periodically, so that a power problem doesn't destroy several hours of hard typing.

Fortunately, *StatView 512+* contains routines that warn you of impending memory limit problems. These are a fine example of the attention given to the user interface by the program.

TYPES OF DATA

A particular variable in a *StatView 512+* dataset can be one of five basic data types. For numeric data, both regular integer (±32,767) and long integer (±2,147,483,648) data types are allowed as is real data. In addition, *StatView 512+* allows the use of string data (for example, a person's name) and categorical data (for example, gender) in a dataset. The example in Figure 1 shows all these data types in a *StatView 512+* dataset. "Name" is a string variable, "sex" is a categorical variable with the indicated values, "age" is an integer type, "weight" and "cholesterol" are both real data types.

Data may be entered in the *StatView 512+* spreadsheet directly, or it may be imported from another file. *StatView 512+* asks the user to specify the delimiters used in the imported dataset and automatically reads the data into a *StatView 512+* dataset. This imported set can then be used, modified and saved as you would any other *StatView 512+* dataset. Conversely, data may also be exported from *StatView 512+* for use by other programs.

A complete set of data manipulations is provided by the program. The statistician may recode data, assign missing values, sort or split columns. These operations are available under the Tools menu. All transformation operations are provided by means of dialog boxes, shown in Figure 2. A very complete set of transformation operations is available. They range from simple arithmetic operations to logarithmic, exponential, trigonometric and hyperbolic functions. Data may also be standardized, lagged or averaged using the transformation facilities.

User defined formulas can be created using the formula dialog box shown in Figure 3. It operates in a manner similar to that of the transformation dialog box of Figure 2.

Once data has been entered and transformed (if applicable), the time comes for data analysis. *StatView 512+* provides a Quick Assignment option to specify the dependent and independent variables for analysis. This option is most useful in large datasets where the name of a specific variable might be forgotten. *StatView 512+* provides the user with a dialog box listing the variable names. Figure 4 shows the Quick Assignment procedure in operation. In this figure, we have specified CHOLESTEROL as the dependent variable and WEIGHT as the independent variable for the analysis.

GETTING RESULTS

StatView 512+ provides a complete array of statistical procedures. Rather than bore you with a recitation of sentences like — "*StatView 512+* provides and and ...," the major statistical procedures available in *StatView 512+* are listed in Table 1. Even in this brief form, the list is an impressive array of statistical procedures.

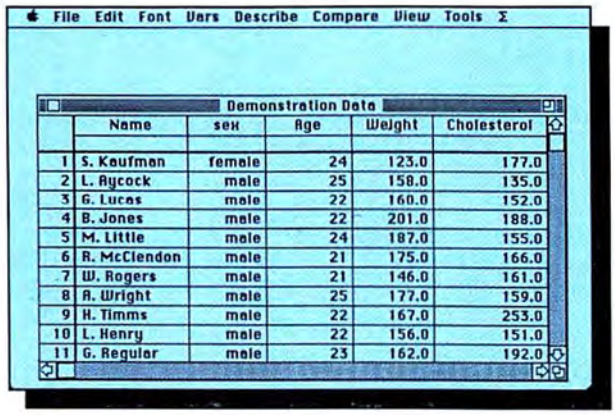
DAVID GAMBALE

STAT'S THE ANSWER

Analyzing data with *StatView 512+* is a simple four-step process. First, the user obtains the data to be analyzed (via direct input, opening a *StatView 512+* dataset or by importing data from another file). Second, the variables of interest are specified with Quick Assignment. Third, the particular statistical procedure is selected from either the Describe or Compare menu. Fourth, the results of the analysis are examined with the View menu. Figure 5 shows the results of a regression analysis conducted with *StatView 512+*. This analysis was a seven-variable regression analysis of 5000 cases. The results appear in a notebook-like window which the user can immediately page through (by clicking on the lower right corner). The results can also be printed for later reference or saved.

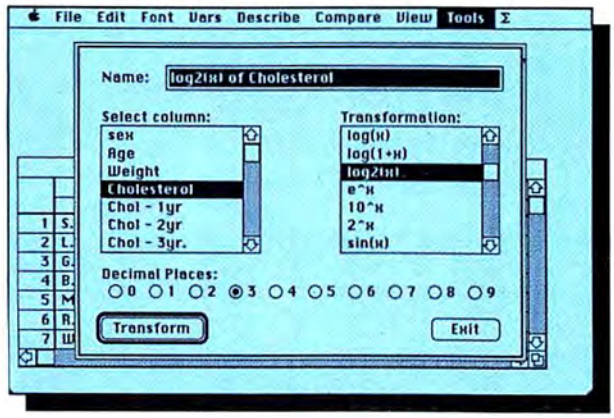
In addition to providing the user with quantitative results, *StatView 512+* provides an excellent selection of graphic output options. The graphic capabilities include scattergrams, bar charts, pie charts, line graphs, and box plots. These graphic displays are among the most sophisticated I have ever seen in a statistical analysis package. For analyzing multivariate data, the *MacSpin* data analysis package (from D^2 Software) provides a most useful complement to *StatView 512+*. Together they would make a powerful statistical environment.

Figure 1: Screen display of *StatView 512+* dataset.



	Name	sex	Age	Weight	Cholesterol
1	S. Kaufman	female	24	123.0	177.0
2	L. Aycock	male	25	158.0	135.0
3	G. Lucas	male	22	160.0	152.0
4	B. Jones	male	22	201.0	188.0
5	M. Little	male	24	187.0	155.0
6	R. McClendon	male	21	175.0	166.0
7	W. Rogers	male	21	146.0	161.0
8	A. Wright	male	25	177.0	159.0
9	H. Timms	male	22	167.0	253.0
10	L. Henry	male	22	156.0	151.0
11	G. Regular	male	23	162.0	192.0

Figure 2: Transformations Dialog Box in *StatView 512+*.



StatView 512+ Benchmark Test
(all times in seconds)

Conditions of the test:

Dataset size: 5000 cases, 9 variables.
StatView 512+—Macintosh Plus, 1MB memory, no RAM disk, no RAM cache, Apple HD20
Minilab—Harris H800 super-minicomputer 12MB virtual memory, hardware scientific-arithmetic unit, 11 other time sharing users
SPSS-X—Harris H800 super-minicomputer 12MB virtual memory, hardware scientific-arithmetic unit, 11 other time sharing users

Statistical procedure	StatView 512+	Minilab	SPSS-X
histogram (real variable)	46	3.4	76
descriptive statistics (one variable)	24	4.9	65
Pearson correlation matrix (all variables)	351	19.6	233
Analysis of variance (oneway)	46	6.7	246
Multiple regression (6 independent)			
with analysis of residuals	530	n.a.	402
no analysis of residuals	476	17.2	n.a.
Factor analysis (6 variables)			
regular data input	312	n.a.	476
correlation matrix input	49		

In addition to providing the graphic displays, *StatView 512+* allows cellulation of scattergrams. Cellulation replaces overlapping points with larger points, or "sunflowers," which give a more accurate visual representation of data clustering. Figure 6 shows the results of a scattergram plot of two variables (500 observations). The data clustering (which commonly occurs with this many data points) is clearly evident. Also shown on the plot is a graph of the regression line of the simple regression involving the two variables. The small boxes to the right of the graph area are "graph controls" which allow interactive manipulation of the display (for example, data point representation, type of cellulation desired, axis labels, etc.)

STACKING IT UP

At this point, we can say that *StatView 512+* provides a complete set of quantitative and visual procedures to provide insight into any dataset that might be required. Only two factors remain — accuracy and execution speed. If the program is inaccurate, the attractiveness of its presentation is irrelevant. If the program is too slow for realistic operation, the program and its features will sit idle. I am happy to report that the program is both accurate and fast.

In terms of accuracy, *StatView 512+* provides results comparable to that provided by a standard mainframe statistical package (*SPSS-X*). A comparison of results indicates that, to 12 decimal places, both *StatView 512+* and *SPSS* agree in their results.

Table 2 is a comparison of *StatView 512+* with two mainframe statistical analysis packages. *StatView 512+* was running on a Macintosh Plus with an Apple HD20 hard disk. No RAM disk or RAM cache was used. The mainframe packages were running on a Harris H800 super minicomputer with a hardware scientific-arithmetic unit and 12 MB of virtual memory. At the time of the test, the Harris H800 had a typical student load of 11 other computer users. The test data set consisted of nine variables and 5000 cases. The

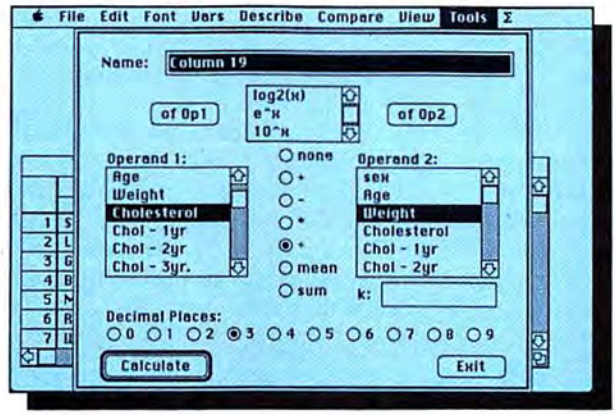


Figure 3: Formula Dialog Box in *StatView 512+*.

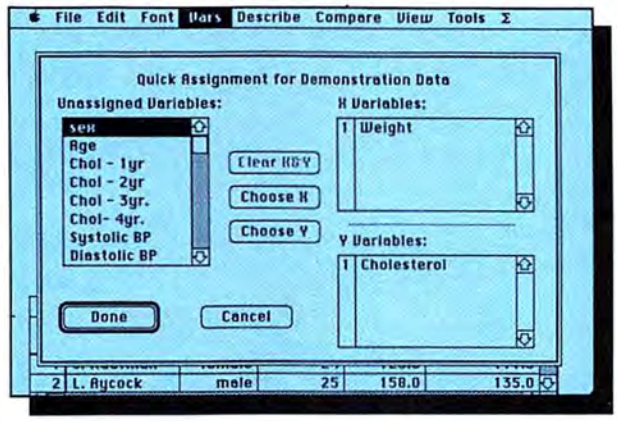


Figure 4: Quick Assignment of Variables in *StatView 512+*.

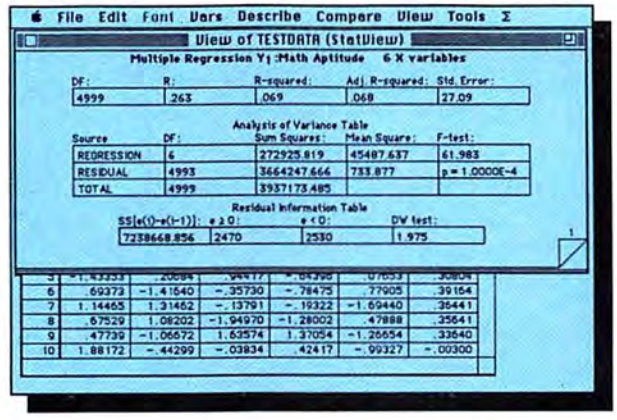


Figure 5: Sample regression output (5000 cases, 6 independent variables).

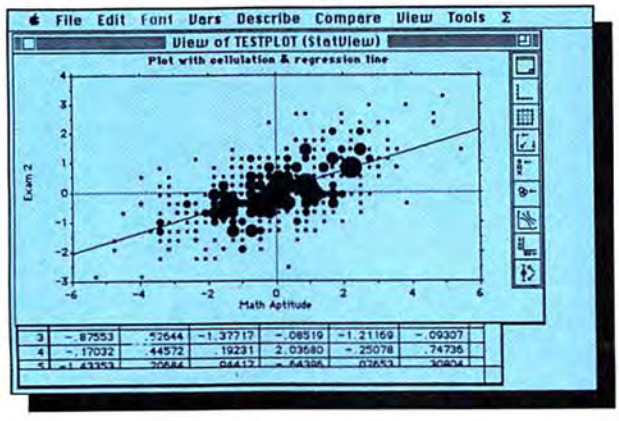


Figure 6: Scatterplot showing cellulation and overlaid regression plot line (500 data points).

STAT'S THE ANSWER

data included both real numbers (7 variables) and categorical data (2 variables).

The results are truly surprising. *StatView 512+* outperformed the batch-oriented *SPSS-X* package in all cases except that of a correlation matrix analysis and a regression analysis. In all instances, however, the *StatView 512+* times were quite acceptable. The *Minilab* statistical analysis package is an interactive package and so operated much more rapidly than did *SPSS-X*. It consistently outperformed *StatView 512+* in terms of execution speed. However, *Minilab* provides only very limited statistical capabilities compared to *StatView 512+* and its graphic display options are of vastly inferior quality to that provided by the bit-mapped display of a Macintosh.

As a simple test of *StatView 512+* options, the regression analysis was also performed without an analysis of the residuals. By not requiring this second pass through the data, the time was improved by about 10 percent. The use of correlation matrix input to the factor procedure resulted in a major reduction in execution time (312 versus 49 sec.).

A much smaller predecessor to *StatView 512+* is also available from BrainPower. This package, *StatView*, provides much the same look as *StatView 512+* without the more sophisticated features such as Quick Assignment, factor analysis, repeated measures analysis of variance, or the interactive data graphics facility provided by the larger package. *StatView* has previously been reviewed in *MacUser* (May pp. 46-52).

In general, if you are really interested in "doing" statistical analyses, I would recommend the *StatView 512+* package. If you are simply interested in "dabbling" with statistics, *StatView* is adequate.

In conclusion, *StatView 512+* provides the Macintosh user with a professional statistical analysis package with access to some very sophisticated graphic display options. These two elements coupled with the Macintosh user interface provide a formidable statistical workstation to anyone seeking comprehension and not just computation.

TERRY A. WARD IS A STATISTICS CONSULTANT AND AUTHOR OF FOUR COMPUTER BOOKS. HE WORKS AS A PROGRAMMER-ANALYST AT THE UNIV. OF NORTHERN IOWA.

MAJOR STATISTICAL FEATURES OF STATVIEW 512+

DESCRIPTIVE STATISTICS
virtually all descriptive statistics of interest are available from mean and standard deviation to percentiles to skewness and kurtosis

GRAPHIC DISPLAYS
scattergram with optional cellulation, bar chart, pie chart, line chart, and box plot

INFERENTIAL STATISTICS

COMPARE PERCENTILES

t-TEST
one group test (sample compared to population mean), paired two group test, unpaired two group test

CORRELATION COEFFICIENT
x-y pairs, correlation of matrix using x columns, save correlation matrix for further analysis

REGRESSION
three regression models:
 simple linear regression, multiple regression, polynomial regression
regression statistics calculated:
 R, R2,
 adjusted R2, standard error,
 ANOVA table, residual statistics,
 beta coefficient table, confidence intervals table
values may be added to data set:
 residuals, standardized residuals, fitted values, and predicted values
plot of regression line

STEPWISE REGRESSION
regression model: forward stepwise (F-to-Enter, F-to-Remove), at each step -
regression statistics calculated:
 R, R2, adjusted R2,
 standard error, ANOVA table,
 residual statistics, beta coefficient table, confidence intervals table,
 variables in the equation, variables not in the equation
values may be added to data set:
 residuals, standardized residuals, fitted values, and predicted values

ANALYSIS OF VARIANCE
oneway factorial with single-factor
multiple comparison tests —
 Scheffe, Fisher's PSLD and Dunnett t
multi-way factorial with up to 16 grouping factors;
 may be unbalanced;
 missing cells allowed
repeated measures
 one within-factor, up to 15 grouping factors; may be unbalanced

CONTINGENCY TABLE ANALYSIS
Chi-square goodness of fit (one group)
Crosstabulation table and statistics:
 Total chi-square, G Statistic, Contingency Coefficient, Cramer's V, Phi (2x2 only), and Chi-Square with Continuity Correction

NON-PARAMETRIC STATISTICS
two group tests: Mann Whitney-U, Wilcoxon Signed Rank, Spearman Rank Correlation Coefficient, Kendall Rank Correlation Coefficient, Kolmogorov-Smirnov, and Wald Wolfowitz Runs
three or more group tests:
 Kruskal-Wallis and Friedman

FACTOR ANALYSIS
data input methods: raw data or correlation matrix
initial factor extraction method:
 Principal Components, Kaiser Image, Harris Image, or Iterated Principal Axis
factor transformations available:
 none, Equimax, Varimax, Quartimax
values may be saved as a data set:
factor scores or correlation matrix

STATVIEW 512+

Overall Rating	■ ■ ■ ■ ■
Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ □
On-Screen Help	None
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ ■

Comments: Full-featured, fast and accurate. **Best Feature:** Extremely wide range of analyses possible. **Worst Feature:** Can't perform some tests, such as econometric time series. **List Price:** $349.95. Published by BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. (818) 884-6911. Requires 512K+. Not copy protected.

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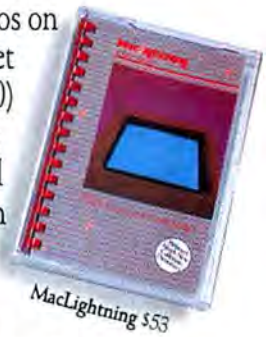
Analyze your approach.
StatView 512+ is the megapowered statistical package from BrainPower. You need a 512k Mac to run it, because it includes advanced statistical procedures like step-wise regression, multivariate analysis techniques, and contingency (frequency) table analysis. StatView 512+ also accepts all data created under the original StatView. Sounds like: *a good bet!*



StatView 512+ $179

Publish a newsletter about it.
Manhattan Graphics has just released a major upgrade of their popular page processor. It's called **Ready,Set,Go!3** and has a full-functioned word processor with global search and replace, spell checker, real-time hyphenation, and more. New paste-up features include dynamic text runaround, automatic text-reflow, multiple windows, and a design grid system. Sounds like: *front page news!*

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MacLightning $53

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Teach Yourself Multiplan 39.
Jazz or Excel Training 39.
Batteries Included
The Mac BatteryPak *(9 desk accessories)* 27.
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Time Link *(time management system)* 29.
Borland International
Sidekick w/Phonelink. 59.
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Designscope *(electronic circuit design)* . . 129.
StatView 512+ *(req. external drive, 512k)* . . . 179.
Broderbund
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Geometry *(over 350 problems!)* 69.
CAMDE
Nutricalc *(diet & nutrition analysis)* 49.
Casady Company
Fluent Fonts *(two-disk set)* 29.
Fluent Laser Fonts. *each* 49.
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Copy II Mac *(includes MacTools)* 20.
Challenger Software
Mac3D *(3D graphics, CAD features)* 149.
Chang Labs
Rags to Riches Ledger 125.
Rags to Riches Receivables *(req. 512k)* . . 125.
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Professional Billing 245.
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Statworks *(statistical package)* 79.
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Quickset *(icon-driven desk accessories)* . . . 27.
Quickword *(word processing tool)* 32.
MacGAS *(spell checker, 512k, ext. drive)* . . 55.
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First Shapes *(preschool learning tool)* 32.
Speller Bee, KidTalk, or Mathtalk 42.
Smoothtalker *(speech synthesis)* 52.
Forethought
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MacChemistry. 89.
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Hard Disk Util *(program backup)* 57.
Great Wave Software
KidsTime *(educational, ages 3-8)* 29.
ConcertWare+ *(music composition)* 29.
ConcertWare+ MIDI 75.
Greene, Johnson
Spellswell *(60,000 word dictionary)* 45.
Hayden Software
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Hayden:Speller *(for Word & MacWrite)* 27.
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Home Design *(home planning tool)* 49.
Score Improvement System for the SAT . . . 59.
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Infosphere
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Type Fonts for Headlines *(req. 512k)* 42.
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Natural Sound Effects 27.
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Manhattan Graphics
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Fortran 2.2 *(compiler)* 169.
Excel 1.0 *(power spreadsheet)* 225.
Miles Computing
Mac the Ripper *(2 disks, req. MacPaint)* . . . 27.
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The Luscher Profile *(personality profile)* . . . 24.
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GraphicWorks *(newsletters, ads, posters)* 49.
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Dollars & Sense *(home, small business)* . . . 81.
Nevins Microsystems
Turbocharger *(disk cache, req. 512k)* 39.
New Canaan MicroCode
MDCFinder *(requires 512k)* 20.
Mac Disk Catalog II *(requires 512k)* 32.
Odesta
Helix *(req. 512k, external drive)* 105.
Double Helix *(relational, custom menus)* 279.
Palantir
MacType, MathFlash or WordPlay 26.
Inventory Control *(cost, sales & GP)* 69.
inTalk *(communication to emulation)* 79.
PBI Software
Icon Switcher *(customized icons)* 14.
Icon Fun & Games or Business Libraries . . 14.
HFS Locater *(DA organizer for HFS)* 27.
Hard Disk Backup *(supports MFS, HFS)* . . 29.
Peachtree
Back to Basics GL, AP, or AR *each* 89.
Polarware
Graphics Magician *(animation)* 39.
ProVUE Development
OverVUE 2.0 *(power-packed database)* . . 149.
Mail Manager Template 29.
Personal Finance Template 29.
QED Information Sciences
Typing Made Easy *(instruction)* 35.

THE ELECTRONIC POSTMAN

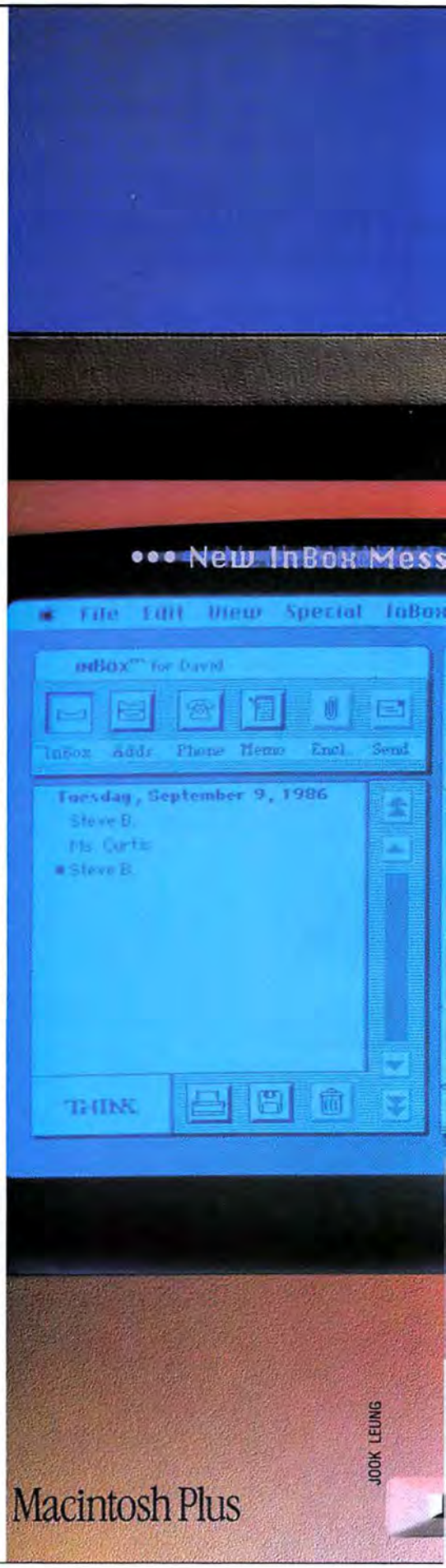
Through rain, snow, sleet and hail, your Mac will deliver the mail first

BY TOM ZITO

IF ANY OF US WHO STARTED USing the Mac in February of 1984 had fallen into a Rip Van Winkle slumber back in those underpowered 128K days, we might be shocked to wake up today and walk into a fully loaded Macintosh office. At least I certainly would be. From a technological standpoint, the LaserWriters and file servers in my own office — not to mention applications like *MORE* and *Excel* — are brute evidence that the Mac has indeed eclipsed the PC as an office productivity tool. But even more than all those, I think I'd be agog at the power and simplicity of an electronic mail system called *inBox* from Think Technologies.

InBox allows any user to send memos, documents, and even entire application programs to anyone on an AppleTalk network who also has *inBox* installed. You can send *inBox* communications to a specific user, a group of users, or post a memo on a bulletin board that's accessible to everyone. The most powerful feature of *inBox* is that you can send mail whether or not the addressee is logged onto the system. This is an important point of difference from the Videx *Mail Center* system, which requires that the recipient be on-line when the message is sent. And therein lies the one potential problem with *inBox* for some Mac offices: in order to keep track of items being sent to individuals not on the system, you must dedicate a single Mac with at least 512K of memory to function as the *inBox* file server.

In my own office, which has a dozen Macs communicating with five PCs (we use the *TOPS* distributed file server system) and two LaserWriters — spread out over 48,000 square feet — the $2000 tied up in our *inBox* server has more than paid for itself in time saved from wandering around the building to distribute pieces of paper. We have *inBox* running on a AST 4000. The *inBox* program operates in the foreground, while in the background *TOPS* allows 12 users access to individual 5-megabyte volumes that also reside on the AST 4000. The reality is that — at least in our environment — having a single Mac dedicated to electronic mail chores provides us with a sophisticated Email system at a fraction of the cost of any other system I know of — for *any* type of



Down to ea

Rubicon Publishing
Silver Palate Collection *(NY's finest!)* $29.
Dinner At Eight *(recipes to wines)* 32.
Dinner At Eight-Silver Palate Bundle 54.
Satori
BulkMailer *(mailing lists)* 75.
Sierra On-Line
MacOneWrite CD, AR, or GL. *each* 79.
Silicon Beach Software
Accessory Pak 1 *(useful utilities)*. 21.
Silicon Press *(printer utility, 512k)* 42.
Simon & Schuster
The Mac Art Department *(req. MacPaint)* . . 24.
Paper Airplane Construction Kit. 24.
Typing Tutor III *(learn to type!)*. 35.
SoftStyle
Colormate Art *(Colormate images)*. 25.
Colormate *(color printing utility)* 49.
Epstart *(Epson printer driver)* 27.
Laserstart *(Hewlett-Packard Laserjet)* 59.
Decision Map *(make better decisions!)* . . . 79.
Software Discoveries
Record Holder *(flexible data manager)* . . . 45.
Software Ventures
Microphone *(communications)* 65.
Solutions, Inc.
Glue *(creates "print to disk" capability)* . . . 35.
Springboard
Art a la Mac Vol. 1-People and Places 23.
Art a la Mac Vol. 2-Variety Pack 23.
Easy as ABC *(ages 3-6, letters)* 29.
Early Games *(ages 2-6, shapes, counting)* 29.
State of the Art
Electric Checkbook *(print checks)* 29.
Symmetry
Acta *(outline/writing desk accessory)* 39.
PictureBase *(clip art manager, 512k)* 45.
T/Maker
ClickArt Personal Graphics *(req. MacPaint)* 29.
ClickArt Letters or Effects *(req. MacPaint)* . . 29.
ClickArt Publications *(req. MacPaint)* 29.
ClickOn Worksheet *(spreadsheet DA)* 46.
Target Software
MacLightning *(interactive spell checker)* . . 53.
Merriam Webster's Thesaurus 29.
Telos Software
Business Filevision *(512k, external drive)* 199.
Think Educational
MacEdge II *(math & reading)*. 28.
Mind Over Mac *(5 challenging games)* . . . 28.
Think Technologies
Lightspeed Pascal. 89.
Lightspeed C *(C Compiler)*. 129.
TML Systems
TML Source Code Library 59.
TML Pascal *(compiler, req. 512k)* 69.

MacConnection Special of the Month
through December 31, 1986

I/O DESIGN MACLUGGAGE
Macinware Plus
Sturdy well-padded carrying case designed for the entire Macintosh Plus system including the external drive, HD 20, keyboard, mouse, cords and manuals.
Available in Navy Blue $59.

Imageware II
Similar to the Macinware Plus in construction—high density foam and 1000 denure Cordura nylon. Designed to carry the Imagewriter II and a small supply of computer paper.
Available in Navy Blue $49.

Macinware Plus-Imageware II Special
Buy both and save. With the selection of a Macinware Plus carrying case and the Imageware II printer case, your cost is only $99.

TrueBasic
True BASIC *(fast, flexible & portable)* 89.
Algebra, Pre-calculus, Calculus, Statistics, Trigonometry, 3D Graphics, Discrete Math, Probability & Chippendale utilities . . .*each* 36.
William & Macias
myDiskLabeler *(design & print labels)* 25.
myDiskLabeler w/color *(req. Imagewriter II)* 34.

GAMES

Activision
Championship Star League Baseball. 22.
Hacker *(you're on your own!)*. 27.
Mind Shadow *(Who am I?)*. 27.
Borrowed Time *(murder mystery)*. 27.
Shanghai *(Mah Jongg strategy)*. 27.
Alter Ego *(male or female version)* 36.
Ann Arbor Softworks
Grid Wars *(3D graphic arcade)* 22.
Artworx
Bridge 4.0 *(sharpen your skills)* 21.
Bantam Electronics
Sherlock Holmes: Another Bow. 27.
Blue Chip
Millionaire *(stock market)* 35.
Tycoon *(commodities)* 35.
Baron *(real estate)* 35.
Squire *(personal finance, req. 512k)*. 35.

Broderbund Software
Lode Runner *(over 150 levels)* $24.
Ancient Art of War *(military strategy)*. 27.
Toy Shop *(create working models)* 39.
Bullseye
Fokker TriPlane Flight Simulator 35.
Electronic Arts
Skyfox *(3D graphics)* 27.
One on One/Dr J vs Larry Bird *(req. 512k)*. . 27.
Pinball Construction Set. 27.
Epyx
Rogue *(strategy dungeon classic!)*. 24.
Winter Games *(Olympic events)* 24.
Hayden Software
Sargon III *(9 levels of chess)*. 29.
Infinity Software
Grand Slam *(tennis, req. 512k)*. 28.
Infocom
Leather Goddesses of Phobos, Ballyhoo, Cutthroat, Hitchhiker's Guide, Planetfall, Wishbringer, Enchanter, Zork I, The Witness *(standard)* *each* 23.
Zork II, Zork III, Sorcerer, Suspect, Mind Forever Voyaging *(advanced)* *each* 26.
Spellbreaker *(expert)* 29.
Invisiclues *(hint booklets)* *each* 6.
MacroMind
Maze Wars+ *(play via modem or network)* 32.
Miles Computing
MacAttack *(3D tank simulation)* 27.
Harrier Strike Mission *(3D flight simulation)* 27.
MacWars *(3D space simulation)*. 27.
Mindscape
Rambo: First Blood Part II 24.
James Bond 007: "A View to a Kill". 24.
James Bond 007: "Goldfinger". 24.
Stephen King's "The Mist" 24.
Racter *(converse with your Mac!)*. 27.
Balance of Power *(world politics)* 30.
Brataccus *(great graphics, req. 512k)* 30.
Uninvited *(mystery adventure)* 30.
Deja Vu *(murder mystery)*. 33.
Origin Systems
Exodus: Ultima III *(fantasy adventure)* 38.
PBI Software
Strategic Conquest *(war strategy)* 29.
Polarware
Transylvania, The Quest, Sword of Kadash, Xyphus, Crimson Crown *each* 15.
Psion
Psion Chess *(3D and multi-lingual)*. 31.
QWare
Orb Quest *(graphic fantasy adventure)* . . . 29.
Sierra On-Line
Championship Boxing *(knock 'em out!)* . . . 25.
Ultima II *(role playing adventure)* 35.

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*Defective software replaced immediately. Defective hardware replaced or repaired at our discretion. Some items have warranties up to five years.

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Silicon Beach Software
Airborne! *(digitized-sound war game)* . . . $20.
Enchanted Scepters *(sound & graphics)* . . 21.
Dark Castle *(digitized sounds)* 28.
World Builder *(create adventure games)* . . 42.
Simon & Schuster
Star Trek—The Kobayashi Adventure 24.
Sir-Tech
Mac Wizardry *(high-rated adventure)* 36.
Spectrum Holobyte
GATO *(submarine simulation)* 26.
Orbiter *(requires 512k)* 27.
Tellstar II *(No. & So. hemispheres, req. 512k)* 27.
Unicorn
Animal Kingdom *(ages 6-12)* 27.
Decimal Dungeon *(math, ages 9 and up)* . . 27.
Fraction Action *(arcade style math game)* 27.
Mac Robots *(pre-school program)* 27.
Math Wizard *(math games, ages 5-10)* 27.
Read-A-Rama *(reading, ages 5-8)* 32.
Videx
MacGammon/Cribbage 28.
MacVegas *(7 casino games)* 34.

HARDWARE

Compucable
Mac Plus to Hayes Smartmodem cable . . . 17.
Mac Plus to Imagewriter II cable 18.
Curtis Manufacturing
Diamond *(6 outlets)* 29.
Emerald *(6 outlets; 6 ft cord)* 36.
Sapphire *(3 outlets; EMI/RFI filtered)* 47.
Ruby *(6 outlets; EMI/RFI filtered; 6 ft cord)* 55.
Dove Computer
Mac Snap *(memory expansion units)* call
Ergotron
MacTilt *(includes external drive bracket)* . . . 75.
MacBuffer 256k 249.
MacBuffer 512k 369.
MacBuffer 1 Megabyte 569.
Hayes
Smartcom II *(communications software)* . . 89.
Smartmodem 1200 call
Smartmodem 2400 call
Transet 1000 call
IOMEGA
Bernoulli Box *(dual 10-MB w/SCSI)* 1895.
Bernoulli Box *(dual 20-MB w/SCSI)* 2395.
10 Meg cartridge 51.
Kensington
External Disk Drive Cover 8.
Mouseway *(mouse tracking pad)* 8.
Mouse Pocket *(for your idle mouse)* 8.
Mac (Plus) Dust Cover 9.
Imagewriter (II) Dust Cover 9.
AppleTalk Clips 11.
Mouse Cleaning Kit w/Mouse Pocket 17.
Universal Printer Stand 18.
Disk Case *(holds 36 Mac disks)* 19.
Disk Drive Cleaning Kit 20.
Tilt/Swivel 22.
Polarizing Filter 34.
Surge Suppressor 35.
Starter Pack *(includes Tilt/Swivel)* 59.
A-B Box *(specify Mac or Mac Plus)* 65.
Control Center 65.
System Saver Mac *(complete with fan)* 65.
Koala Technologies
KAT Graphics Tablet 139.
MacVision *(digitizer)* 175.
Kraft
QuickStick *(Mac joystick)* $45.
Mirror Technologies
FastPort *("SCSI" for your 512k Mac)* 139.
MagNet 20x External Drive w/cable 939.
Magnum 20 Tape Backup 929.
MagNet 30x External Drive w/cable 995.
N² Products
Mac (Plus)-Printer cable *(6 feet)* 19.
Mac Plus Adapter cable 19.
Mac Plus-SCSI cable 24.
Personal Computer Peripherals
MacBottom Hard Disk 20MB *(SCSI)* 879.
PKI
McD 800k External Drive 199.
Summagraphics
MacTablet 6" x 9" *(stylus driven)* 265.
MacTablet 12" x 12" *(sketching)* 369.
Systems Control
MacGard *(surge protection)* 55.
Thunderware
Thunderscan *(high-resolution digitizer)* . . 175.
Mac Plus Power Accessory 29.
Western Automation
DASCH RAMdisk 1000k 349.
DASCH RAMdisk 2000k 399.

DISKS

Single-sided Diskettes

BASF 3½" Disks *(box of 5)* 9.
Sony 3½" Disks *(box of 10)* 17.
Verbatim 3½" Disks *(box of 10)* 17.
MAXELL 3½" Disks *(box of 10)* 17.
Fuji 3½" Disks *(box of 10)* 17.
3M 3½" Disks *(box of 10)* 19.

Double-sided Diskettes

BASF 3½" Disks *(box of 5)* 14.
Sony 3½" Double-sided Disks *(10)* 26.
Verbatim 3½" Double-sided Disks *(10)* . . . 26.
MAXELL 3½" Double-sided Disks *(10)* . . . 26.
Fuji 3½" Double-sided Disks *(10)* 26.
3M 3½" Double-sided Disks *(10)* 27.

INFORMATION SERVICES

Compuserve
Compuserve Information Service 27.
Dow Jones
Dow Jones News/Retrieval Membership Kit 21.
Source Telecomputing
The Source *(subscription & manual)* 30.

ACCESSORIES

Automation Facilities
Floppiclene Drive Care Kit 15.
MacPak Complete Care System 29.
Computer Coverup
External Disk Drive Cover 4.
Imagewriter (II) Cover 8.
Mac (Plus) & Keyboard *(two covers)* 10.
Diversions
Underware Ribbon *(iron-on black transfer)* . . 9.
ColorPack *(includes Colorpens)* 19.
Environmental Software Company
The Clutch *(holds 8 disks)* 9.
MACATTIRE (Rip-stop nylon covers)
External Drive Cover *(400k or 800k)* 7.
Numeric Keypad Cover $7.
Numeric Turbo Cover 8.
Imagewriter (II) Cover 11.
Wide Imagewriter Cover 13.
Mac (Plus) & Keyboard Cover 15.
Laserwriter Cover 17.
Mac (Plus) & HD20 & Keyboard Cover 18.
I/O Design
Imageware Wide *(132-column Imagewriter)* 49.
Imageware II special
Macinware Plus special
Innovative Concepts
Flip & File Micro *(holds 25 disks)* 9.
Flip & File *(holds 40 disks)* 18.
Innovative Technologies
The Pocket Pak *(holds 6 disks)* 9.
The Easel *(holds 20 disks)* 12.
The Disk Directory *(holds 32 disks)* 18.
The Library *(carousel, holds 80 disks)* 29.
Kalmar Designs
Teakwood Roll-top Case *(holds 45 disks)* . . 15.
Teakwood Roll-top Case *(holds 90 disks)* . . 22.
Magnum
Mouse Mover *(let your mouse ride!)* 14.
Moustrak
Moustrak Pad *(standard 7" x 9")* 8.
Moustrak Pad *(large 9" x 11")* 9.
Ribbons Unlimited
Imagewriter Color Ribbons 5.
Imagewriter Ribbons Six Pack 25.
Smith & Bellows
Mahogany Disk Case *(holds 90 disks)* 28.
Mac Plus Pack *(covers & disk case)* 39.

OUR POLICY

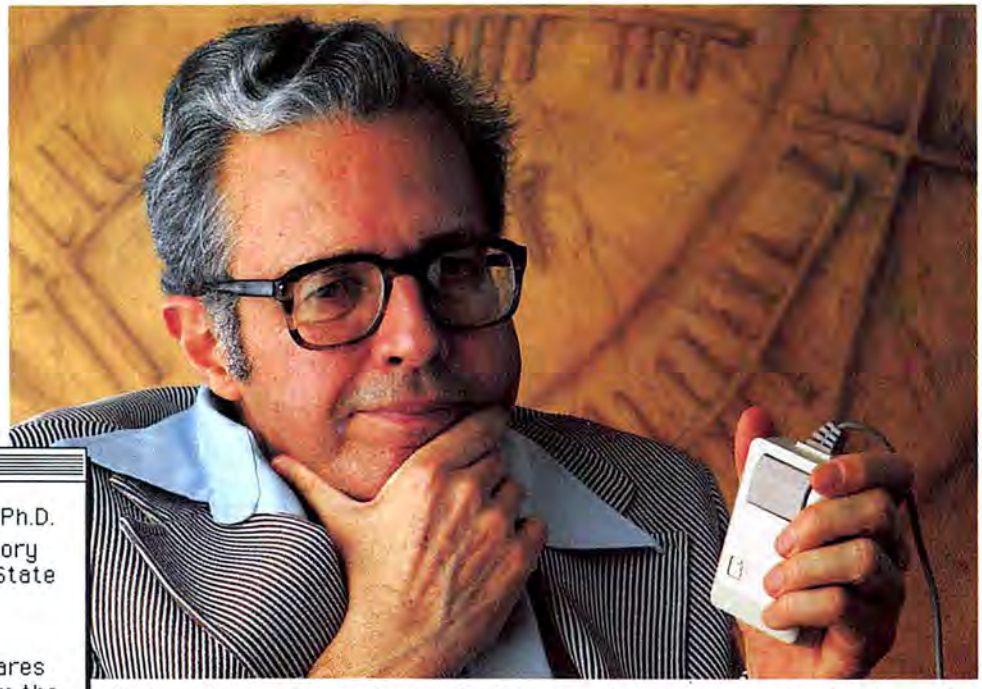
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"To the goddess Bianu."

Long before there were Macintosh computers, humans discovered the value of symbols. They're simple, to the point, and they travel well. Just listen to Professor Warren Cook. He'll tell you how well they travel – he helped figure it out. On his Mac.



Professor Cook and a reproduction of an Ogam translation quiz he gave his class. Many of the Ogam inscriptions found in Vermont were prayers offered to the goddess Bianu.

Contest Winner #1

Name: Warren L. Cook, D. Litt., Ph.D.
Occupation: Professor of History and Anthropology, Castleton State College, Castleton, Vermont
System: Mac 128k
Application: Draws and compares ancient scripts and icons from the "Old" and "New World."

Now, it's a free country. Everyone is entitled to their own opinion about who discovered America – Columbus, Leif Erickson, Native American Indians, refugees from Atlantis. But it sure is interesting when Professor Cook points out the similarities he and Harvard Professor Emeritus Barry Fell are discovering between:

1. OGAM: Inscriptions found in ancient New England stone structures;
2. TOCAPU: Small square script found on Incan textiles and wooden vases: and;
3. CYPRIOT ALPHABET: Letters dating from the Bronze Age.

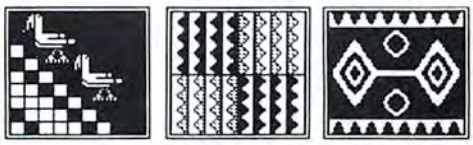
Mac smashes code!
First, Professor Cook travelled the world taking color slides of surviving Incan textiles and wooden bowls. Then he used the Mac to draw the Tocapus found on these artifacts. The Mac let him focus on details, create whole images from a single quadrant, and change dimensions in order to compare symbols on different size artifacts. Ultimately, he was able to print a "font" of these symbols which can readily be compared to other ancient alphabets and inscriptions.

Professor Fell of Harvard was the first to "translate" tocapus on modern textiles using an alphabet derived from ancient Cypriot script. Now Professor Cook is sending him his Mac renditions of ancient tocapu. They hope to prove that Phoenician masters in the Bronze Age sent Iberian subjects across the Atlantic looking for tin and copper, and left behind an alphabet which developed in the Americas.

What hidden meanings have you discovered on your Mac? Send us your story. You could win $500 in Mac products and instant fame!



Professor Cook uses his Mac to draw and compare symbols found on old Incan textiles.

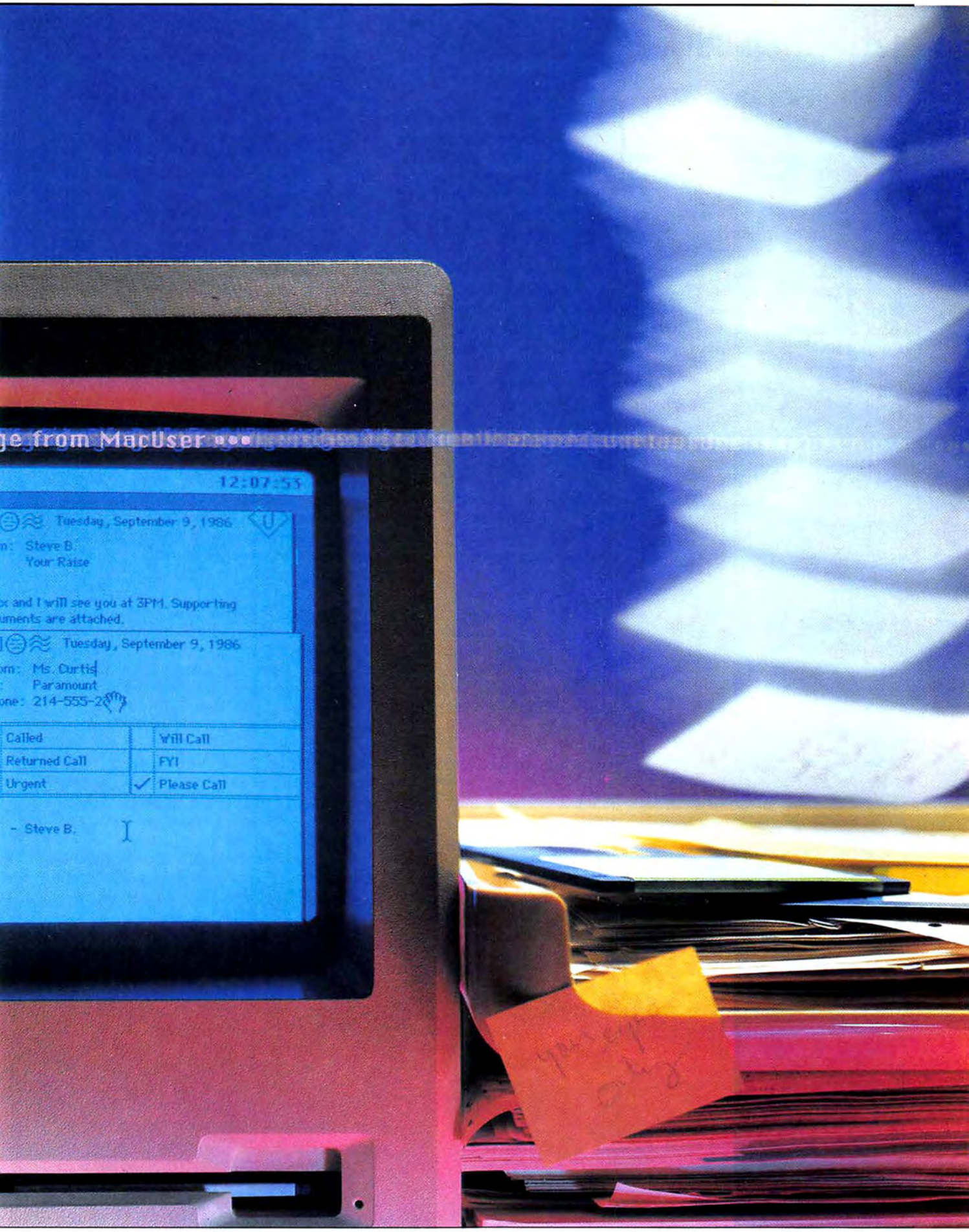


"My Connection."

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Please circle 82 on reader service card.


ge from MacUser
12:07:53
Tuesday, September 9, 1986
Steve B.
Your Raise
and I will see you at 3PM. Supporting
uments are attached.
Tuesday, September 9, 1986
Ms. Curtis
Paramount
214-555-2
Called
Will Call
Returned Call
FYI
Urgent
Please Call
- Steve B.

THE ELECTRONIC POSTMAN

computer network. If everyone in your office is always logged onto your network concurrently, the Videx system may prove more cost effective. The price of the software itself — about $75 per node — is essentially the same for both.

Installation of *inBox* on the server unit can be done on either a floppy or hard disk. You click on the inBox Administrator icon, and are prompted for an initial password, which will be used in the future by the network administrator to maintain the system. You then create a file called inBox Data, where all the message activity will reside. (If you anticipate that one 800K drive with *System, Finder* and 350K for *inBox* itself, 6K per mailbox and 1K for every two short messages may provide enough storage room for your messages, a floppy system will work for you; otherwise, a hard disk will be essential.) The final preparation step involves filling in a grid with user names and the passwords they have selected. When you complete the grid, the screen of the *inBox* server indicates the number of messages and enclosures sent, read and deleted, as well as the amount of disk space used and available.

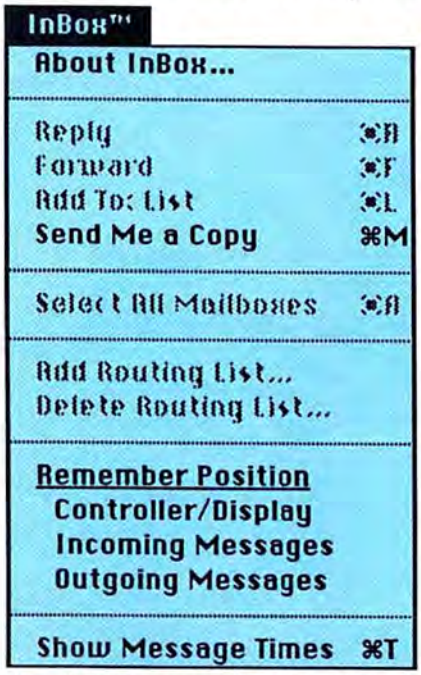
Installation at individual nodes is equally straightforward. The user runs an install program that prompts for name and password. *InBox* resides under the Apple menu as a desk accessory — a hefty one at that, for it takes up about 85K when in use.

When you open *inBox,* you are prompted for your name and password. You can have your own Mac remember these values, but then no one else can access their messages from your machine (that is, anyone can get to the *inBox* Email system from any Mac, unless the Mac has been told to remember a particular person's log-on sequence). *InBox* then presents six icons: inBox Tray, Address List, Phone Message, Memo, Paper Clip and Send.

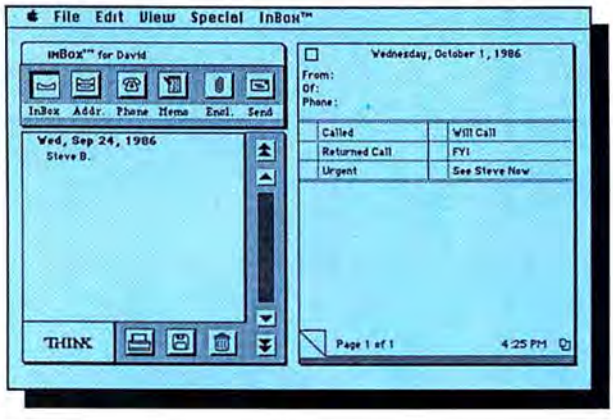
Clicking the inBox Tray icon will bring up a scrollable list of messages that you have received, in the order they arrived. The list will be subdivided by days, and contain the names of a received memo's author, the time the memo was sent (if you choose that option), the name of any person who has called you (if you have received electronic telephone messages) and the subject of the phone call. Any of these can be read, printed, trashed or transferred to your own disk. If mail has been sent to you during a period in which your Mac was turned off, you'll be told that you have unread mail when you power up. If you receive mail while you're on-line, your Mac will sound a bell and a message will scroll across the menu bar announcing: ••• New inBox message from (name of sender). ••• (Both the sound and the scrolling announcement features can be turned off.) A ◊ character next to a message indicates that the message was sent with an RSVP request: the minute you open it, the sender will be notified. A ® character indicates that a message with your own RSVP request has been received: if the boss doesn't respond to your pay hike request, you'll know when to knock on his door. A † character next to a message means that you've sent this memo to yourself. A • character next to a message means you haven't yet read it; double-clicking on any message will open it. If the message has a Paper Clip icon affixed in the upper right corner, there is an enclosure with the message: double clicking on the paper clip brings up a Save As dialog that allows you to transfer the enclosure to disk.

To create a message to send to another user, you click on either the Telephone or Memo icons. The Phone icon brings up a standard blank telephone message sheet. We've all seen them: so-and-so of such-and-such called; urgent; please call; blah blah blah. If you buy into the Mac's desktop metaphor, it's logical to have this piece of electronic paper on your desktop.

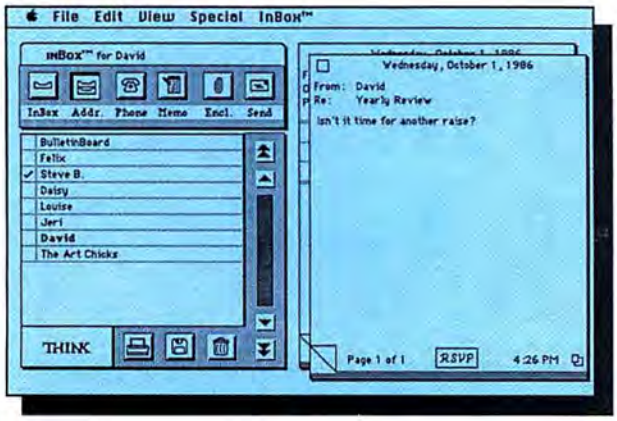
Clicking the Memo icon brings up an electronic memo pad, with the date, time and your name already filled in. The pad scrolls with the same lower-left dog-ear icon familiar from the Mac's resident Note Pad, and there's a size box in the lower-right corner of the pad. There's also an RSVP box at the bottom: clicking it will make sure that you're notified when your message is received. Memos can be as long as 30 pages. If you need to enclose a file — a spreadsheet, a *MacPaint* document, indeed anything you've created on the Mac — you click on the



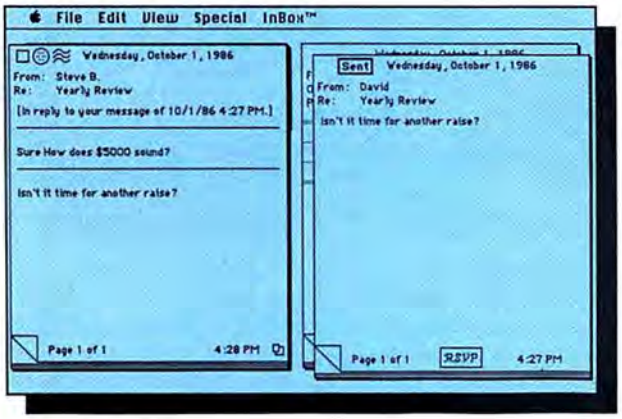
When the desk accessory is opened, *inBox* installs this pull down menu.



The *inBox* split screen: the left side tells you the date and source of a message; the right shows the customized telephone message pad.



After typing your memo, clicking beside a name on the address list tells *inBox* where to send it. A memo like this is a definite candidate for the RSVP request.



Moving the arrow to the top of a form will allow you to move it, if you need to refer to your original, or any previous, message.

Paper Clip icon, and up comes a dialog box that allows you to click through disks and scroll through files. Double-clicking on a file name within this dialog box attaches that file to your memo.

With your Telephone Message or Memo still on the desktop, you now click on the Address Book icon and are presented with a list of *inBox* users. Clicking to the left of any name places a check mark in the margin, indicating to whom the message will be sent. You can send a message to one person or many persons. You can also create routing lists, which can be made up of different subsets of individuals on the network. These routing lists will appear in your address box; placing a check mark next to a routing list name will address your message to all the individuals included in that subset. Once you've indicated the names of your recipients, clicking the Send icon will post your electronic mail.

You can access *inBox* either from the desktop or from within an application — in theory. This doesn't seem possible from within, among others, *Jazz, OverVUE, ThinkTank* or *Excel* — possibly because of the way they allocate memory or address desk accessories. You can, however, run *inBox* under *Switcher* if you're using an application that won't allow you to call *inBox,* and switch between the two. When you summon *inBox,* an additional pull-down menu is added to the top of your screen, allowing for some power-user features. Reply lets you respond to a message, and sends the original message back with your response embedded in it. Foward lets you do just that, as does Send Me a Copy. Add To: List inserts a grocery list of names at the beginning of a memo; you select them from the address book list of *inBox* users. Show Message Times will display the time a message arrived at your mailbox. There's a convenient Select All Mailboxes, for copying all users with a memo, and two selections — Add Routing List and Delete Routing List — that allow for the creation of user-group subsets. Remember Position allows you to permanently change the position on the screen occupied by *inBox* from the upper-left default.

InBox keeps a copy of every message sent at the *inBox* server. Even when a user deletes messages from his own file, it's still taking up space on the server's storage media. There are two ways to deal with this. The inBox Administrator utility can be instructed to automatically compress the files deleted by individual users and reclaim that disk space at the server installation at a particular time daily or weekly. This process can also be done manually. When file compression is being performed, the system isn't available; the server sends out a message to all users logged on at that time that the system is about to go down. Typically the downtime lasts less than 5 minutes.

I've worked in large offices for over 15 years now, and I can't estimate how many memos I've written in that time. After using *inBox* for two months, I can unequivocally say that it has vastly improved the communications process within my organization and has made it even more clear that the Macintosh office is becoming more and more capable of serving the needs of business — regardless of an organization's size.

TOM ZITO IS A SILICON VALLEY AREA COMPUTER WRITER AND MARKETING PRO.

INBOX

Overall Rating	■ ■ ■ ■ ■
Follows Mac Interface	■ ■ ■ ■ ■
On-Screen Help	None
Performance	■ ■ ■ ■ ■
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ ■ □

Comments: A sophisticated Email system that lets you send documents, memos, programs. **Best Feature:** Does not require that the recipient be on-line when the message is sent. **Worst Feature:** Needs its own Mac with at least 512K. **List Price:** Starter kit for administrator and 3 users: $299. Additional user kits: $75 each. Published by Think Technologies, 420 Bedford St., Lexington, MA 02173. HFS compatible. Copy protected.

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ClickArt Holidays
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DataSpace
corporation

The Write Stuff



The LaserServer™ from DataSpace™ is a true multi-user print server allowing several Macintoshes on the AppleTalk™ network to send print jobs to the LaserWriter simultaneously. Not only does the LaserServer handle simultaneous transmissions, it also buffers each print job being sent to the LaserWriter, freeing each Macintosh up to 80% sooner. This combination yields tremendous time savings and dramatically increases the productivity of the LaserWriter.

If your environment has a LaserWriter shared by two or more Macintoshes, then you have already experienced the aggravation of waiting for the LaserWriter, while you could be doing something else.

The LaserServer incorporates a slot system for maximum expandability, it comes in a minimum 2 megabyte configuration, expandable up to 12 megabytes. The slot system also allows for other future enhancements cards such as downloaded fonts etc.

To manage the printing jobs in the LaserServer, one Macintosh on the network is designated as the 'print manager'. The print manager is capable of setting priority levels for all Macintoshes on the network, allowing the most important users faster access to the actual printing on the LaserWriter.

Each Macintosh on the network has its own desk accessory which enables it to monitor the position of its print jobs in the LaserServer queue, and even allows print jobs to be deleted instead of being printed. Other functions of the desk accessory permit each user the option of being informed when its print jobs are completed, or when manual feed jobs are ready.

The LaserServer from DataSpace was designed specifically to enhance the performance of each Macintosh on the AppleTalk network using Apple's LaserWriter. If your corporation or organization use the LaserWriter with two or more Macintoshes, the LaserServer will help you maximize your network and improve its productivity.

Key Features:

- fully Macintosh, LaserWriter and AppleTalk compatible
- true multi-user capabilities
- 2 megabytes of memory expandable to 12 megabytes
- up to 80% time savings per user
- expansion slots for further enhancement cards
- status display

Specifications

- processor MC68000 @ 10MHz
- memory 2 Meg. to 12 Meg.
- I/O data rate 230.4 kbaud
- dimensions 18.5″ × 14″ × 6″

Specifications subject to change without notice

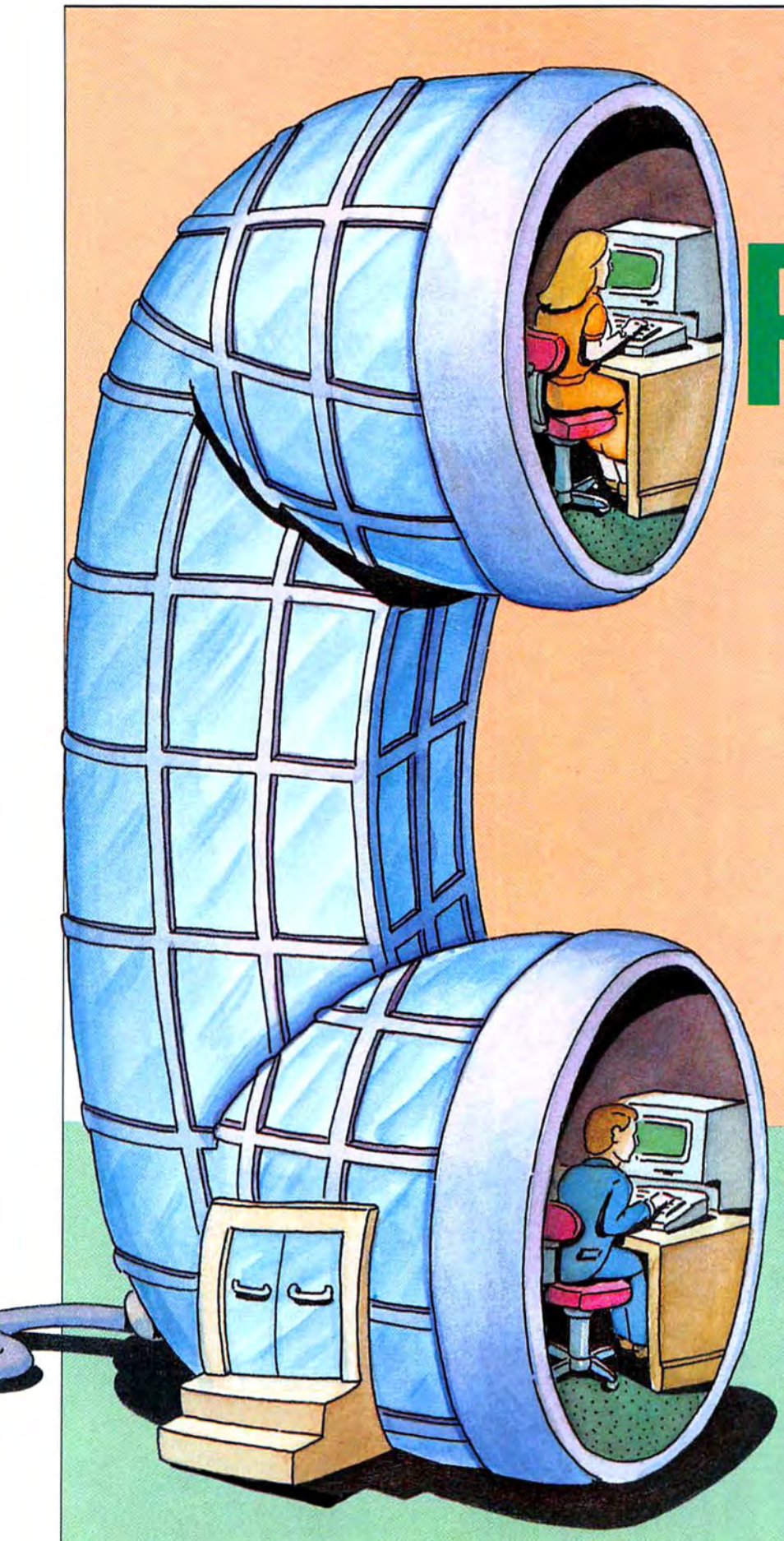
DataSpace
corporation

205 Riviera Drive, Markham,
Ontario, Canada L3R 2L6
(416) 474-0113
(toll free) 1-800-387-0492

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PARTY LINE

String no unnecessary cable, repeat no unnecesary signals.

THE MACINTOSH IS NOT A LONEly computer — Apple made sure of that. They designed the Mac to adapt easily to working in small clusters. A few Macs here, a LaserWriter there, and (gasp) even an IBM PC down the hall can all communicate with one another. Files can be stored on one computer and used by another, printers shared, and office mail networks set in place. AppleTalk software handles all the details, directing traffic for the signals going from one device to the next. The simplicity and power of AppleTalk have changed how people think about local area networks. But before you install a new AppleTalk network or use an old one for much longer, take a look at PhoneNET. It's fully AppleTalk-compatible and offers some important advantages over using Apple connectors in every Mac network.

AppleTalk is revolutionary because much of what an AppleTalk

CHARLES WALLER

network needs to do its job is already available inside every Mac. By contrast, networking other PCs requires expensive hardware cards, software, and the usual 1000-page manual. AppleTalk is invisible to the user: you simply select a printer through the Chooser desk accessory or select a file as though it existed on your Mac. All you have to add to the Mac is a low-cost connector box, some connecting wiring, and, if files are to be shared, a file server program. Because AppleTalk is a standard protocol used throughout the Mac world, every AppleTalk device and program communicates smoothly with the rest. PhoneNET takes AppleTalk further not by changing any of the software that makes it work so well but by making AppleTalk hardware more flexible, less expensive to install, and trouble-free to use.

A BETTER WAY

Well, I've exaggerated a bit. Even AppleTalk and PhoneNET are a cinch to use, but both require some installation if they will be used in more than one room. Sure, connecting two Macs on nearby desks to a LaserWriter takes about two minutes, but what about wiring a whole floor of offices? Who wants to string cable underneath carpets, across floors, and through doors? Let's hide the cable within walls and ceilings. No problem, but Apple's twisted-pair coaxial cable and installation labor costs can add up fast, making that $50 connector seem almost free. And in some localities, such as New York City, you can't legally put regular AppleTalk cabling inside walls or in the ceiling. Those places require conduit or special Teflon-coated cable. Suddenly you're talking really big money.

Enter PhoneNET and AT&T divestiture to the rescue. Many offices and homes already have all the cable they need for a network, going right where they want it, in their telephone lines. Although almost every telephone cable has four wires, only two of them (the red and green) are used for single telephone lines. The other two (yellow and black) carry no signal. Now that the phone companies have decreed that you own the wiring within your office or home, you are free to run whatever you like through that extra pair of wires. PhoneNET lets you plug in a phone cable and connector from your wall jack to your Mac with no charge for buying or installing cable. Even if you can't use existing lines because the yellow-black pair is dedicated to something else like a second phone line, telephone cable is less expensive to buy and install (about 15 times less expensive) than the coaxial cable that Apple uses and is less subject to restrictive electrical codes.

A PhoneNET connector takes the place of an Apple's connector box, and is approximately the same size—about 2 by 2 by 3 inches. Its electronics are different because it is optimized for sending signals over phone cables rather than computer cables. Should someone on a PhoneNET network want to use an Apple connector instead, though, both types of connectors can coexist. PhoneNET is completely software- and hardware-compatible with AppleTalk. A simple adapter cable with a phoneplug and an Apple DIN-3 cable connects Apple connectors to PhoneNET.

THE HIDDEN ADVANTAGES

A few surprises surfaced when the first PhoneNET prototypes were assembled, and they're good news for every Mac network. PhoneNET and phone lines get along very well together. Tests have shown that the PhoneNET circuit is not affected by simultaneous voice or data transmission on the other lines of the phone cable, just as digital PBX networks and voice telephone lines coexist today. PhoneNET works fine alongside digital phone lines as well as analog ones. You can even plug your telephone into any available PhoneNET connector and use it normally. You can connect various parts of PhoneNET and your phone lines together with the same supplies you buy in the phone section of your hardware, department or phone store. Every available jack can be used either for a phone or for the network; just plug in either a phone or a computer without worrying about which goes where. Phones will use one pair of wires, PhoneNET will use the other pair.

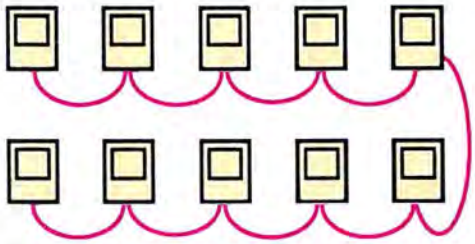
Moreover, PhoneNET can send signals much further without amplification than AppleTalk can. AppleTalk operates best on less than 1000 feet of cable, while PhoneNET can run through 3000 feet of cable with little or no signal loss. In technical jargon, AppleTalk uses two signal cables and a ground, while PhoneNET uses only two balanced signal cables and floats the ground. This gives PhoneNET the power to send signals further with better signal to noise performance than standard AppleTalk boxes. Should you want a network longer than these limits, repeaters are available from PhoneNET's manufacturer, Farallon Software, to extend the length of both AppleTalk and PhoneNET.

PhoneNET also offers your Macintosh better protection from voltage surges on network lines than Apple connectors. Since PhoneNET operates on phone lines which sometimes are targets for lightning strikes, it is designed to handle greater than 700-volt surges and keep on working. Each Macintosh is electrically isolated from the network so

BY LINDA CUSTER

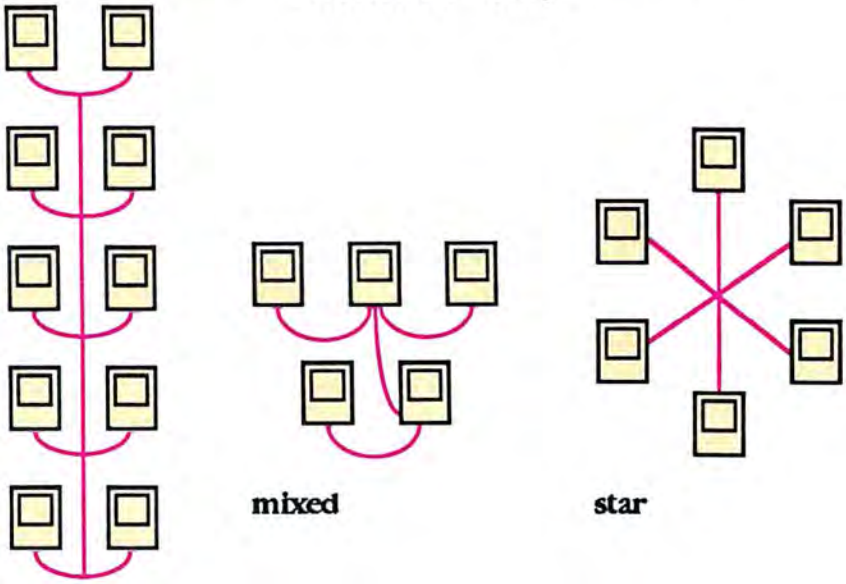
PARTY LINE

Network configurations allowed by AppleTalk and PhoneNET



serial

Network configurations allowed by PhoneNET only

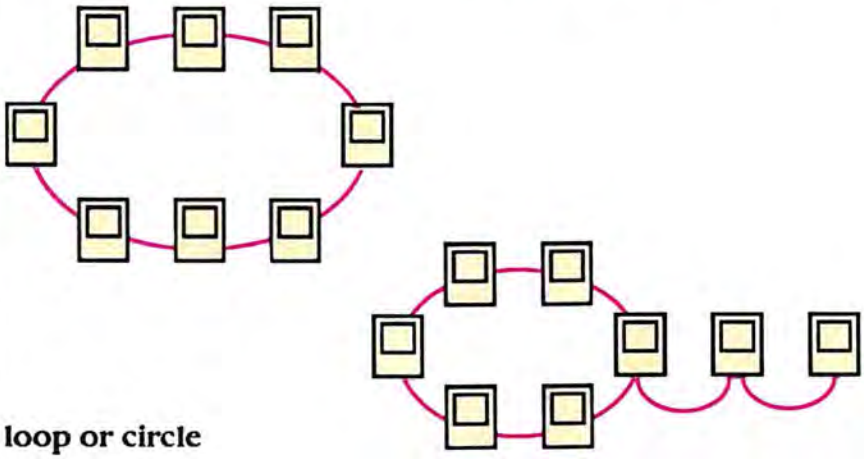


parallel

mixed

star

Network configurations not allowed by AppleTalk or PhoneNET



loop or circle

harmful pulses never reach sensitive equipment. This also means devices can be removed and added to PhoneNET with no disruption of the network.

Because PhoneNET operates more like a digital phone network than a linear data network, it allows you to set up your wiring in stars and branches. The only limitation is that you may not create loops or circles anywhere in the network. Apple connectors do not permit any branches or stars, and so they often require more cable and allow less flexible positioning of equipment.

Finally, PhoneNET connects the network by standard positive-locking modular telephone plugs. Therefore the network is never disconnected by light pulls on the line. The slightly out-of-phase or noisy signals generated from improperly locked Apple friction-fit connections are eliminated with PhoneNET, and the network is a little easier to assemble and disassemble.

APPLETALK ENHANCED

Apple's LaserWriter lets you publish ideas professionally and quickly without using an army of graphic artists and printers. Products like *TOPS*, a powerful networking program by Centram Systems West give your Mac the power to share information quickly and easily even with IBM PCs and VAXen. PhoneNET enhances all these products because it lets you use the power of the AppleTalk devices and programs over an easily installed and reliable network. It won't let your Mac be lonely for long.

LINDA CUSTER IS A PH.D. CANDIDATE IN BIOCHEMICAL ENGINEERING AT UC BERKELEY AND A FREELANCE MACINTOSH CONSULTANT.

PHONENET ■■■■■

Price is $49 per connector. Wiring will either exist or components can be purchased from any telephone store, such as a Radio Shack or from Farallon. Farallon Computing, 1442A Walnut Street, #64, Berkeley, CA 94709, (415) 849-2331.

THE ONLY COMPLETE MULTIUSER SYSTEM FOR APPLETALK AND ANY HARD DISK

MultiUser Helix

MultiUser Helix is a shared data-based information management and decision support system that includes a complete application building environment. With MultiUser Helix you can design a system to run a business, office, or department and then share that system to coordinate the efforts of your people.

No programming necessary

Use icons and visual design tools to create all the vital input and report forms, lists, analyses, and mail merge letters needed to run your business. No need to learn a programming language, understand arcane command codes or special formulae. Visual building blocks let you quickly set up data-based calculations to take care of any business need; from order entry, inventory control and invoicing to sales analyses, budget tracking and asset management.



Design forms that reflect the way your business works — from mailing labels to entry forms to presentation-quality reports. All Macintosh fonts, styles and graphics capabilities are supported.

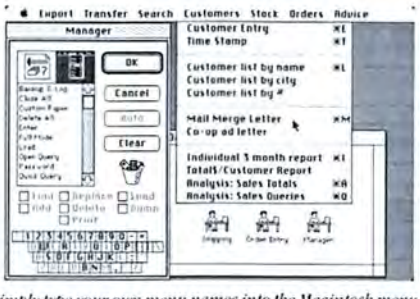
Everything built in

In MultiUser Helix, the multiuser capability — enabling more than one person to work with the same information base at the same time — is built into the software. All other systems require special hardware or extra software. They "force" a multiuser effect with programming tricks like "semaphores," and rely on external "fileservers" to simulate multiple access to files. This results in a complicated, inflexible, slower, and more expensive system. In MultiUser Helix, the whole network functions like a human nervous system, with its own updating and feedback mechanisms as a natural part of the system. There is no reliance on external hardware devices, and no need to worry about programming interlocks and special volume configurations.



A system everyone can share

Just connect your Macintosh computers with the AppleTalk network (the same cables that connect the Macintosh with the LaserWriter). MultiUser Helix automatically updates all screens and shows the current results of any changes made on the network. MultiUser Helix handles all network control, including record updating and record locking. Since everything is already built in, there is no need to worry about special fileserver hardware or software. Best of all, MultiUser Helix works with any hard disk.



Simply type your own menu names into the Macintosh menu bar and drag form names and commands into the menus. Then click user options and permissions on a per form basis before assigning keyboard controls which instantly open forms for entry, automatic reports and printing.

Expandable

This package contains 3 MultiUser Host/Guest disks, so that you can start with a 3 station network. Additional stations are available to a total of 31 per network.

Full support from Odesta

This MultiUser Helix package includes: 7 disks (2 Double Helix v.1+ program disks, System disk, Resource/Work disk with sample applications, 3 MultiUser Helix Host/Guest disks); 3 reference manuals, including a tutorial Quick Start guide, and an 18 ring project binder with notepad. To Odesta, your business is as important as our own: call us toll-free with technical questions or to inquire about our Consulting and Application Design Services.

Key Network Features

- Supports AppleTalk Network
- Compatible with any hard disk **(no fileserver required)**
- Expands up to 30 users per network
- Each user can have his or her own personalized menus and password that relates to that person's function
- Time stamping
- Automatic external data log file to ensure data integrity
- Automatic updating of any record or list — on screen
- Complete control of viewing, adding, deleting, changing, or printing information on a per form/per user basis
- Capability of having multiple "hosts" on one network simultaneously
- Can be used in conjunction with volume servers and file servers
- MultiUser Helix receives the same excellent support Odesta gives to the other members of the Helix family

Requirements

- Network host requires hard disk, and 1Mb memory is recommended.
- AppleTalk Network.
- Guest nodes work with the Macintosh Plus, 512E, or Macintosh 512 with external drive.

HELIX

Odesta Corporation 4084 Commercial Avenue Northbrook, IL 60062 U.S.A.
800-323-5423 (In IL) 312-498-5615

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SIX-PART HARMONY

Is it the real thing or is it just a Studio Session?

THE BEST SOUND IS REAL SOUND.

If you had a choice between eating real hen eggs, or the dried and reconstituted artificial "egg substitute" that so many of us remember (with fear and disgust) from college days, which would you choose?

So far, Macintosh music software has been relatively good. A generation of Mac owners learned to love (and sometimes hate) *MusicWorks*, *ConcertWare+*, *ConcertWare MIDI*, *Deluxe Music Construction Set*, and other players. But no matter how well the software was written, or how smoothly it worked, there was always an underlying problem that couldn't easily be solved: the music from these programs sounds computer generated. That's because the sounds themselves aren't realistic; they're synthesized. In the case of *ConcertWare*, the resourceful hobbyist can come up with some fairly complex sounds by using its *Instrument Maker* program, but they invariably sound synthetic.

Enter *Studio Session*. This inexpensive ($79.95) program gives the average Mac musician the kind of flexibility that can be found only on multitrack sampling systems such as the FairLight CMI ($80,000+) and the Synclavier ($75,000+). Of course, these systems far outweigh *Studio Session* in terms of capabilities and ultimate sound quality. But they're also priced many orders of magnitude above *Studio Session*, are nowhere near as easy to learn and weigh a lot more. Which would you choose for your living room?

The premise behind *Studio Session* is simple: take sounds digitized from real life, get Steve Capps (of *Finder* fame) to help out with getting the Mac to produce six voices of sound (when it thinks it can only really handle four), create a notation-processor to type the tunes in, set to a low boil, and come up with a music program that can produce sound like no other microcomputer music package (similar software designed for the Amiga hasn't shown up on the market yet, although it's been promised). Even though it has some shortcomings, *Studio Session* is a glimpse into what music software will sound like in the years to come.

THE PLAYERS

Studio Session consists of two programs: the *Editor*, where songs are created, and the *Player*, which adds a touch of visual spice when playing *Studio Session* compositions (songs can also be played from within the *Editor*). The package also includes two single-sided disks loaded with prerecorded instruments, and a folder with sample song files, which more than adequately demonstrate proper usage of different combinations of instruments.

The instruments included will probably be more than sufficient for most users, and thanks to *SoundCap* (see sidebar), the library is potentially infinite. Included are over 80 different sounds, such as a full drum kit, wind and horn sections, piano, acoustic and electric guitars (with some great hammer-ons and bends, for the rock-and-rollers), sampled synthesizer goodies and more. The guitars and piano are sampled the correct way, that is, in octaves, to preserve correct relative pitch and duration for each octave. With *SoundCap*, these basic sounds can be processed and digitally mixed to create complex new ones.

MAKING MUSIC

Notes are entered track-by-track by selecting the note cursor, clicking on a note in the note palette, placing the cursor on a line of a clef, and clicking the mouse button. Once a note is in place, there are two cursors that can be used to modify it. The eraser deletes a selected note while the bender is used to move the note up and down on a clef (changing the pitch), and to change the duration of a note. For example, if a half note is selected, and the bender is dragged to the left, it will become a quarter note; a drag to the right makes it a full note. The bender is useful for assisting nonmusicians in learning musical notation, by helping establish a visual relationship between a note, its length and how it will sound at a particular pitch.

Studio Session follows traditional music notation fairly closely, with one exception: accidentals. An accidental is a notational element that denotes a flat, sharp or natural pitch for the notes it affects. Normally, placing an accidental at the beginning of a bar would cause all notes in that bar to change accordingly. In *Studio Session*, this isn't the case: accidentals must be placed before each individual note that is to be affected. Besides this anomaly, everything else generally follows standard notational rules. Groups of notes can be selected and tied together, and jazz aficionados will be happy to find that they can add an element of swing to a selected range of notes. If two notes of similar length are bound with the Swing command, then the first note will be slightly longer than it should be, the second note slightly shorter. Selected groups of notes can also be transposed up or down in either half or whole step increments.

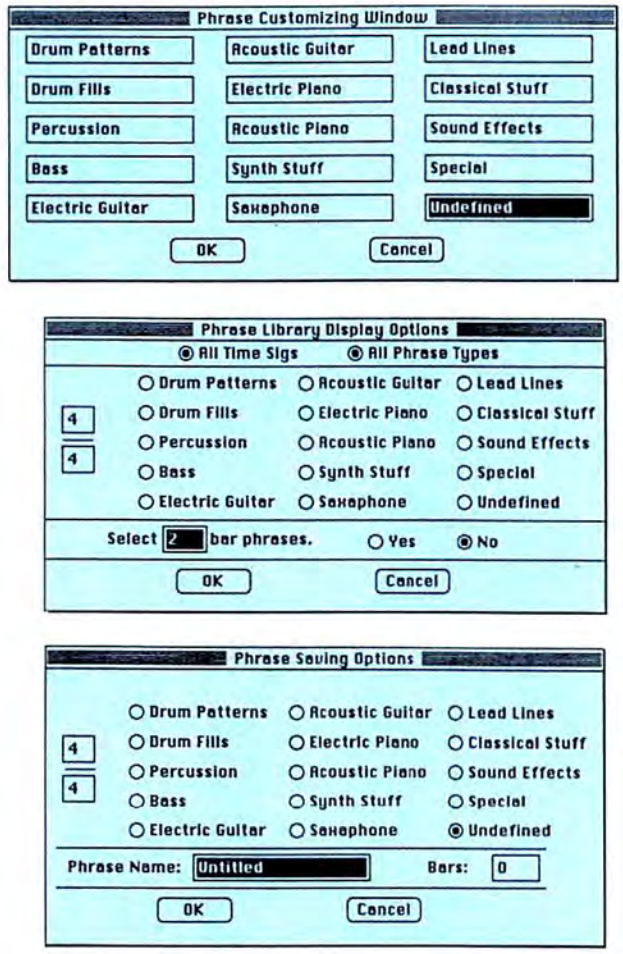
Any section of music can be set to

BY DAVID BIEDNY

CAMERON WASSON



SIX-PART HARMONY



You'll see these three windows when creating songs by manipulating phrases. The top window determines the names of the phrase types that appear in the other two. Phrases may be saved with specific details (bottom window), and the type of phrases to be displayed in the phrases window when composing can be specified.



The Change Instrument dialog. Instruments are inserted in the Change dialog by selecting them from the Instruments window. The Change, Then Find command is a combination of the individual Find Next and Change commands.



The Player screen. As a song plays, the tape in the cassette advances and the VU meters react accordingly. The playback volume and tempo can be modified with the sliders, and individual tracks can be turned on and off. Pressing a track's solo button causes all other tracks to be silenced.

repeat for practically any number of times. This is useful when, for example, ten bars of a rhythm pattern are needed, and the basic pattern already exists in a single bar form. Instead of copying and pasting the contents of the bar ten times, the bar is set to repeat ten times, which is much more economical with memory than the former method.

Studio Session uses phrases as its functional building block. A phrase is a group of notes that has a definite pattern: a bass line, a hi-hat ride, a flute solo, any group of notes in any time signature and key. In the program, each phrase is a series of notes in a specific track. Defining phrases is easy: highlight a group of notes, select SAVE SELECTION AS PHRASE from the Selection menu, and a dialog will appear, prompting for a name for the phrase, its length in bars, the time signature and what type of phrase it's to be saved under. When putting together songs, the user may specify which phrases to display in the Phrase window; for example, if a string movement is to be added to a song, the phrase window can be configured to display only four bar phrases saved as strings. The program comes with a number of predefined phrase categories; custom category labels can also be entered.

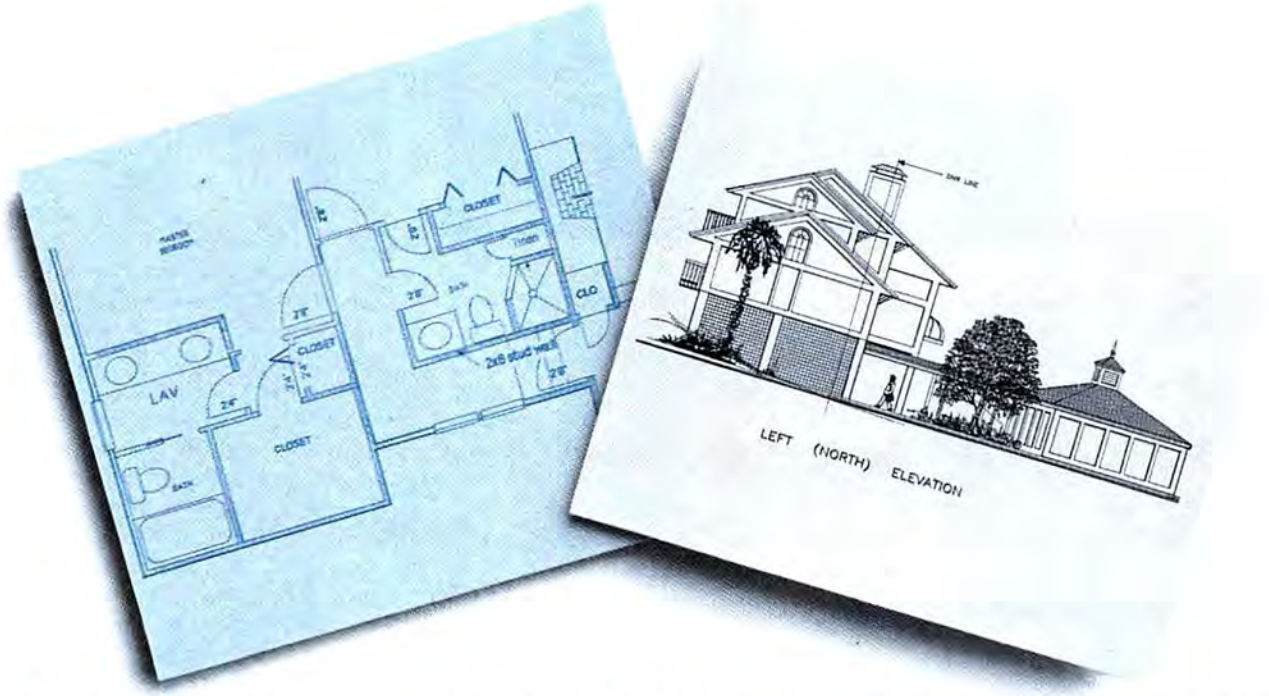
Instruments are inserted into the score by selecting them from the Instruments window, and hitting RETURN (there's also a menu selection that accomplishes the same thing). A vertical bar with the instrument's name appears on the staff. Each sound track can have a vast number of instrument changes: up to 512 instruments can be used in a song (six at a time), so that you're not locked into using only six different instruments in the course of a song. The only limitation is that only six instruments can play at a time (considering that the Mac typically produces only four voices, this isn't really a limitation at all!).

The program has features that will make it easy to get the creative juices flowing. A Search and Replace command will find occurences of a particular instrument, and replace it with another instrument (of course,

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MacDraft 1.2

It keeps getting better.



Drawing Environment

Choose your scale and units and MacDraft will do the rest. Dimensions of objects, snap grids, rulers, cursor positions, area calculations and auto dimension lines will be computed for you.

New Features:

Resize groups & bit maps proportionally. Bit maps can also be stretched in an X, Y direction independently.

Cursor position indicator. Determines the relative position of an object on the drawing.

Hard disk install or de-install your copy of MacDraft.

New drawing scales. Choose from 32, including 2 new engineering scales; 4x & 10x, both in US and metric units.

Increased accuracy. Select from 1 to 4 places behind the decimal point. The values will be rounded off correctly.

Automatic area calculation of any object to scale regardless of complexity. Even trace the boundaries of overlapping objects to obtain net area.

Pict format allows you to save a drawing as well as open a document that has already been saved in this format. Transfer large drawings to a plotter driver that supports the format and conveniently use selected page layout programs.

64 Fill & ink patterns plus dynamically edit, create and save your custom patterns.

Plus:

Create circles by radius or diameter, arcs by radius or defining 3 points. For irregular shapes our polygon and freehand tools offer dynamic editing, auto closure and adding sides to an existing object. Zoom in and magnify a portion of your drawing up to 8x; or zoom out and see as much as 4′ x 4′ in a single window, maintaining full drawing capabilities at any view. Even rotate objects 1° at a time.

Don't Be Deceived

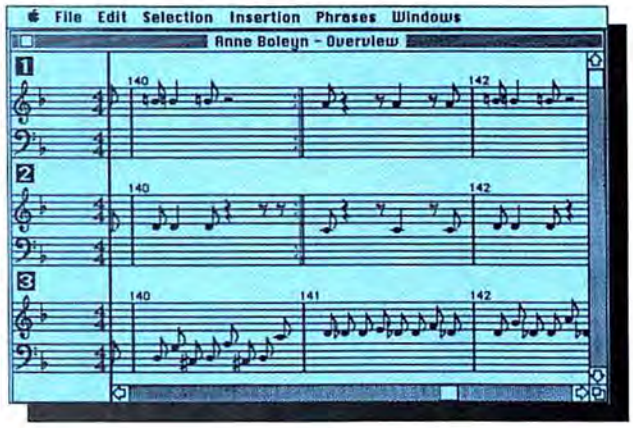
MacDraft is only $269.00, yet it offers the majority of drawing capabilities of CAD systems costing much more. It is the only drafting program that takes full advantage of the Macintosh user interface.

idd inc.

Innovative Data Design, Inc.
1975 Willow Pass Rd., Ste. 8
Concord, CA 94520
415/680-6818

Please circle 129 on reader service card.

SIX-PART HARMONY



The Overview window. Tracks one, two and three are displayed. Measures are numbered, with the number displayed above the measure line. Different combinations of tracks can be viewed, three at a time.

the program doesn't assume that you'll remember how all the instrument names are spelled: names are selected from the Instrument window). This command can either be used track-by-track, or for all tracks. A command for specifying more than one, but not all tracks, would have been useful here.

The *Player* module is more of a cosmetic nicety than a functional necessity. A graphic representation of a six track tape deck takes up the entire screen, and buttons and switches allow the user to interact with the module not unlike they would with a real cassette deck. As a song plays, the cassette tape rolls forward, and six VU (volume) meters register sound on each individual track. As instrument changes occur in a track, the names of the instruments appear below the meters. This doesn't always work correctly: Sometimes the wrong instrument would be displayed; at other times the correct instrument would appear at the wrong time. This isn't really crucial or detrimental to the operation of the *Player* module; but it is a bug. Otherwise, the cuteness of this module is a natural for showing off your own compositions. A tip: Don't move the mouse around when a song is playing; doing so will interrupt and distort the sound.

Your compositions can be printed to either the LaserWriter or the ImageWriter, and there are some bugs in the printing functions: instrument names do not always appear in their entirety in the score; there's a print bug at the beginning of staves, clipping at the right edge of each sheet, and more. Although none of the bugs were major, *Studio Session* shouldn't be relied on as a notation generator. There are programs better suited to that task.

A NOTE OFF

One of the biggest drawbacks of the *Editor* module is that it requires some level of notational literacy in order to create harmonious music. Phrases are a nice level at which to manipulate music, but even the concept of a phrase is more than many people will want to deal with. There is currently no way to import music from any of the other Mac music programs, which would adequately resolve this problem. This essentially leaves *Studio Session* in the realm of music readers/writers, which is unfortunate, considering the potential popularity that it could achieve by becoming more universal.

When creating music in various tracks, one of the problems nonmusicians will encounter is that it becomes difficult to gauge where to place music in a track so that it coincides with a particular point in another track. Say, for example, that a song began with four bars of a guitar solo, and then on the fifth bar,

(continued on page 186)

MAC-A-MUSICIAN

In the real world, if an orchestra leader needs a particular instrument for a song (marimbas for Brazilian music, perhaps), the local musicians union is contacted, and the services of an instrument specialist (read: musician) are employed. When you need a new instrument for a *Studio Session* composition, the process is somewhat less involved (and much cheaper!). All that you need is a program called *SoundCap*, and the black box that works in conjunction with it. The *SoundCap* hardware and software combination allows the user to record real sounds, which the computer converts into digital information that can be analyzed, and reproduced through its sound circuitry.

The *SoundCap* digitizing box can be connected to any number of audio output devices (cassette recorders, microphones, CD players, televisions, etc.) with the provided ⅛-inch mono miniplug. If needed, adaptor cables can be obtained from an electronics store (Radio Shack is a good source) to attach the digitizer to the headphone jack of a stereo (an ⅛-inch female to ¼-inch male is what's needed). The incoming sound can then be monitored in real time on the Macintosh screen, and when you find a particular sound that you like, it can be digitally recorded. Note: if the digitizer hardware is to be used with a Mac Plus, then a powered port adaptor will be needed (the digitizer draws its power from the serial port to which it's connected).

Once in the Mac, any number of special effects can be added to the sample: use the Reverb to put that trumpet out in the middle of a canyon, or take a cymbal crash, and flip it backwards (this is a top 40 sound effect). Portions of sounds can be cut, copied and pasted with the mouse, and sounds can also be digitally mixed, to create exotic composite sounds. Then take the sound (or any portion of it), and save it as a *Studio Session* instrument. In *Studio Session*, open the instrument file, and use it exactly like one of the supplied instrument files. Tip: When inputting a sound into *SoundCap*, use the volume controls on the sound source and on the digitizer box to get a reasonable sound level, and when you think that you have it right, turn up the gain an extra notch. Once in *Studio Session*, instruments don't sound as loud as they were recorded (this happens because the Mac produces six simultaneous voices partly at the expense of the overall volume output).

If all this sounds trivial, it isn't. This level of sound manipulation was previously attainable only with the most expensive digital sampling synthesizer system. Now it can be done entirely on your humble Mac.

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ROMANCING THE ORB

Role-playing games meet brain-teasers in Orbquest.

THE WORST THING ABOUT ADventure games is that once you've finished them, you've finished them. Then you have to wait months in the hope that another good adventure will appear, which they don't do frequently enough on the Mac.

After you've rescued your brother in *Uninvited* and vanquished the evil Exodus in *Ultima III*, what's a would-be hero to do?

Well, you could sink your teeth into *Orbquest*, a new fantasy role-playing game that takes its cues from noncomputer swordquests like "Dungeons & Dragons." *Orbquest* bears a passing resemblance to the *Ultima* games, although there are a lot of major differences between the two.

The object of *Orbquest* is to create a hero of your choice and use that character to collect seven lost pieces of a magical orb.

MAKING A HERO WITH THE RIGHT STUFF

The first order of business is creating the character that you'll use to explore the fantasy planet's terrain.

Each character is assigned random numbers that represent attributes like strength, wisdom and charisma. Strength is the most important characteristic for a fighter to have, while intelligence governs how often a wizard can cast spells. A character's race and gender affects its attributes (for example, males are stronger, but females are more charismatic and therefore get better deals in the shops). If you don't like the numbers that the computer automatically generates, just click the on-screen button to "re-roll" the computer-based dice.

Only one character can explore at a time, although you can fit a few different character files on the disk. (If you have the time to build up two different characters, you can cheat by using one character to explore and the other to just walk right through the scenario.)

Each character's file is updated each time you save his or her game, so in the event your hero meets an untimely death you will be able to revert to the file saved most recently. (Be careful in the dialog box that asks if you want to abandon or revert to a saved game after your character has been killed, though, since it's awfully easy to trash your whole character file by mistake. That's because there's no idiot-proof, "Are you sure you want to abandon that character?" double-check.)

THE ORBQUEST GLOBE

Orbquest uses a similar movement and command system to *Ultima*'s. The terrain is displayed from an overhead or bird's-eye view, and the screen scrolls in the direction the hero is walking in. Boulders are impassable and marsh land inflicts damage each time a character steps into or through it. And it is quite possible — indeed, necessary — to find a way to cross over the water.

The hero is represented by a small icon on the screen. Players steer their character around the screen by using the mouse to point a small arrow in the direction the hero is supposed to walk.

Despite pseudo-medieval trappings, the *Orbquest* world has no dungeons per se. In this scenario, it's pyramids that hold the key to the richest treasures — and some of the deadliest traps.

CIVILIZED OUTPOSTS

Villages, towns, cities and pyramids dot the landscape, and only in one of these locations can players save games in progress without quitting the game entirely. But villages, towns and cities have far more uses than that — they also contain a number of shops that sell such necessary items as food, armor, weapons, drinks and (in some cases) magic items and healers.

Towns are populated only by shopkeepers, and unlike the *Ultima* games you won't find any townies to talk to. The scenario's only major flaw in logic is that players will get the distinct impression that they're the only living beings in the game universe. All other characters exist to serve the quest, either by supplying goods or information, or by being killed to supply gold and experience points. It's a minor point, but it detracts from the overall "adventurish" feeling of the game.

THE ULTIMATE OBJECT: THE ORB

The key to winning the game is in assembling all seven pieces of the lost orb. Each piece is found in a pyramid, and once you remove the piece from a particular pyramid, its place will remain empty as long as your character plays.

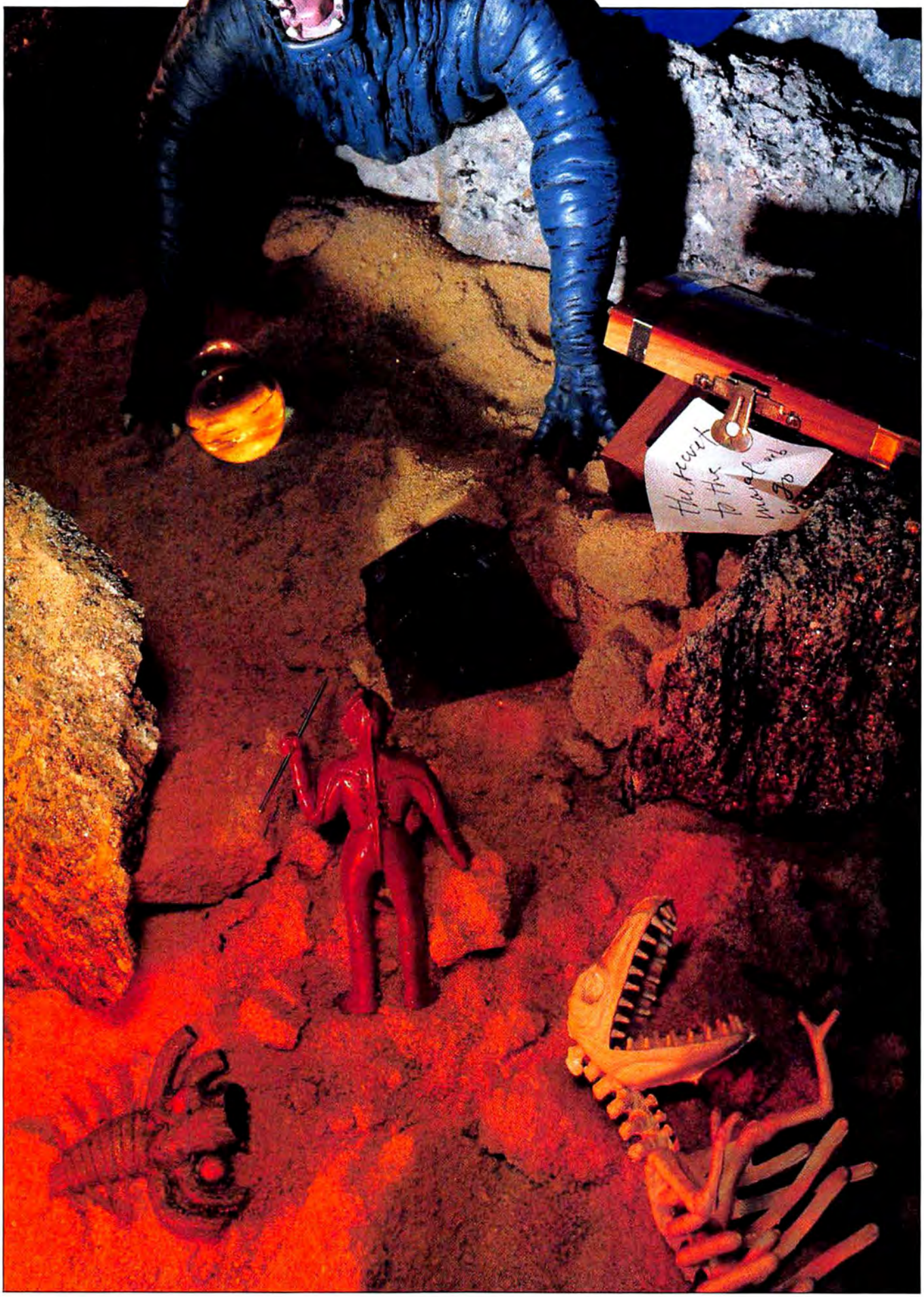
Pyramids are gigantic mazes, populated only by teleportation squares and random traps, and they exist for the sole purpose of housing pieces of the orb.

You'll be able to enter one pyramid without having done anything too spectacular. But to break through the magic barrier surrounding all subsequent pyramids, you'll have to pass the tests administered on the Isle of Mages.

THE KEY TO THE PYRAMIDS

Because you will have to pass a battery of tests on the Isle of Mages — and because it will take quite

BY TRACIE FORMAN HINES



JENNY LYNN

ROMANCING THE ORB



Our hero, the sorcerer in the gray cape and hood, prepares to buy food in a town shop.



Whenever possible, lead monsters towards towns. That way, you can duck into civilized safety if the going gets too tough. And you'll never get surrounded by bad guys.

some time before you've had the time and money to visit the island often — your first priority should be trying to find the Isle. Sorry, folks, we'll give you no help here except this hint: You'll have to find some way of crossing water if you ever hope to win the game.

The Isle is *Orbquest*'s truly distinguishing feature. Other role-playing games might require a bit of deductive reasoning, or a little stab at problem-solving. But don't expect to win *Orbquest* without proving your worth, by passing a battery of tests administered on the island. It's a very good idea to save the game just before entering the city of Mages, since it's very possible that you'll fail a test the first time through. When that happens, you'll find yourself banished to a deserted marsh, and will have to fight your way back to civilization — without many of your most prized possessions.

The tests range from action reflex contests to logic puzzles that would be considered trick questions on law school entrance exams. As a whole, they're challenging enough to knock the smug grin off any would-be superhero's face.

MASHING MONSTERS

The only way to accumulate enough gold to buy weapons and armor — and enough experience to advance in level, which makes your character more powerful — is to kill monsters. A lot of monsters. And don't bother to try negotiating with any creature you run into outside of towns, since when a monster invites you to dinner, it's because you're going to be the main course. Monsters always attack and always fight to the finish. So approach them all with the respect that they deserve.

Monsters appear frequently everywhere except inside towns, cities and pyramids, and they will always attack as soon as they are able. Monsters are extremely stupid, though, and smart players can often avoid them simply by knowing their movement patterns: a monster will always make a direct beeline for the hero as soon as it spots him or her. But when that direct line is obstructed by a stone outcrop, the monster will not be smart enough to figure out how to move around the rock and attack you.

If you can get enough distance between yourself and a monster to scroll its image off the screen, that monster disappears completely. Another trick to avoiding close encounters with really dangerous beasties is to lead the creatures to a village or city, then immediately go inside, where the monster can't follow you. Then save the game. Next, go out and try your best to do battle. If your character dies a valiant death, you can simply revert to the saved game — and when you come out, all the creatures that chased you to the town are gone.

Early in the game, the monsters you meet will be relatively small and harmless. Don't get too cocky, though, because the stronger your character gets, the bigger and meaner the attacking creatures are. Up to six monsters can travel in a single group, and since your character has a total of eight vulnerable spots (to the north, northeast, south, etc.), make sure you don't get caught by more than one monster while out in the open.

MAKING MAGIC

You'll probably discover the usefulness of the Heal spell early in the game. You'll probably also notice that every time you cast a spell, you temporarily lose a spell point or two. These points represent the physical and mental effort it takes to cast a spell, and they can only be restored by the passage of time. The more experienced your character is, the more spell points he or she will be able to use before running out.

All spells are selected from the Spell menu, which displays the spells you currently own in black, with those you still need grayed out. You can purchase additional spells at any magic shop — if they happen to be selling them that day. One warning about magic shops is in order: you can attempt to steal whatever you like from them, but if you get caught you'll be punished by having all your magic items confiscated on the spot. Again, saving the game before making any attempt to steal — and then

saving it again directly after a successful attempt — will smooth the way for those with larceny in their hearts.

When in a magic shop, take the time to examine all the merchandise for sale. Different shops carry different magic items, so it helps to make a note of anything interesting you find, including which town or city you found it in. When buying high-ticket items like magic, it helps to have a high charisma. That increases your negotiating skill, so you'll end up able to buy what you need at cheaper prices.

Not all magic items are useful. There are a few red herrings thrown in for good measure, and you'll find these items in magic shops and when you kill monsters. If you aren't sure how useful a found item is, try selling it at a magic shop. If they offer you a tiny amount, your item is either worthless or harmless. If they offer you a small fortune, you'll know you own something important.

THE ULTIMATE POWER

Each piece of the orb bestows a different magical power, and to use each orb spell requires a lot of energy (the type that can only be restored by the passage of time). The powers range from the relatively minor, such as Uncursing a character, to quite important, like being able to see the entire world map — and the hero's location on it — with the click of a mouse.

There are a total of seven pyramids, each of which houses a single piece of the orb. Make sure you keep accurate notes as to the location of each pyramid, since chances are you won't be able to enter them all right away.

THE SCOOP ON GETTING INFORMATION

Orbquest is not really meant for novice adventurers. The instruction book — and the game itself — assumes a lot of role-playing game knowledge on the part of the player. But there are a number of hints built into the game, and smart players will jot down notes every time they hear something interesting.

There are two ways to acquire hints: you can buy them by bribing bartenders in towns and cities or you can stumble across them in the form of messages hidden in treasure chests. Buying the information is considerably less risky.

Pubs are located in just about every town, village or city you stop into on your travels. They sell everything from mineral water to rotgut, with the prices varying according to a drink's alcoholic content. The rule of thumb is that the more expensive the drink, the higher the quality of information you'll receive from the bartender.

The major problem with buying a drink from the pub is that it costs a lot of money, especially considering that our hero will be busy spending his or her cash buying armor, weapons, magic spells and food, and also paying off the troll to cross bridges. Early in the game, when you need the information most, is when you'll be least able to afford it.

There is a cheat strategy you can use to get the information you need without paying for it. Enter a town. Save the game. Then, go to the pub and order as many different drinks as you can afford. Write down everything the bartender says, since even if it makes no sense at the time, it will come in handy later on. Finally, revert back to the saved position. You'll still have all your money and you'll know whatever the bartender told you.

The other way to get information is to kill a monster that owns a treasure chest. Inside the chest, you might find a note. If you're lucky, that note will have a clue written on it. If you're not, well, better luck next time!

THE BEST OF THE QUEST ... AND THE WORST

All in all, *Orbquest* is a very solid, very playable adventure game. It lacks the practiced sophistication of an *Ultima* scenario (which it most closely resembles in the way it's played), but in certain ways it's considerably harder to win. You won't be able to win *Orbquest* just by seeing every bit of it. You'll have to make a lot of logical connections on your own, without the benefit of a lot of townsfolk who can give you hints, or the relative safety of an on-screen advisor.

The creativity that went into the design of monsters and magic items is fresh and decidedly humorous. For example, the House Spouse is a deadly creature that fights with a rolling pin. And stay on the watch for a magic item that could give you Ring Around the Collar!

Another excellent idea is the toll-free number that's accessible right under the Apple menu. Q-Ware's adventure game support staff have all played *Orbquest* extensively, and we found them to be knowledgeable, courteous and just a little devious in the way they give their hints.

On the down side, there are a few things notably lacking that would have made this good, playable game even better. For one thing, no adventure game should be released for the Mac without a built-in Note Pad desk accessory. After all, if we wanted to take notes on crumpled bits of paper, we would still be using Com-

(continued on page 192)

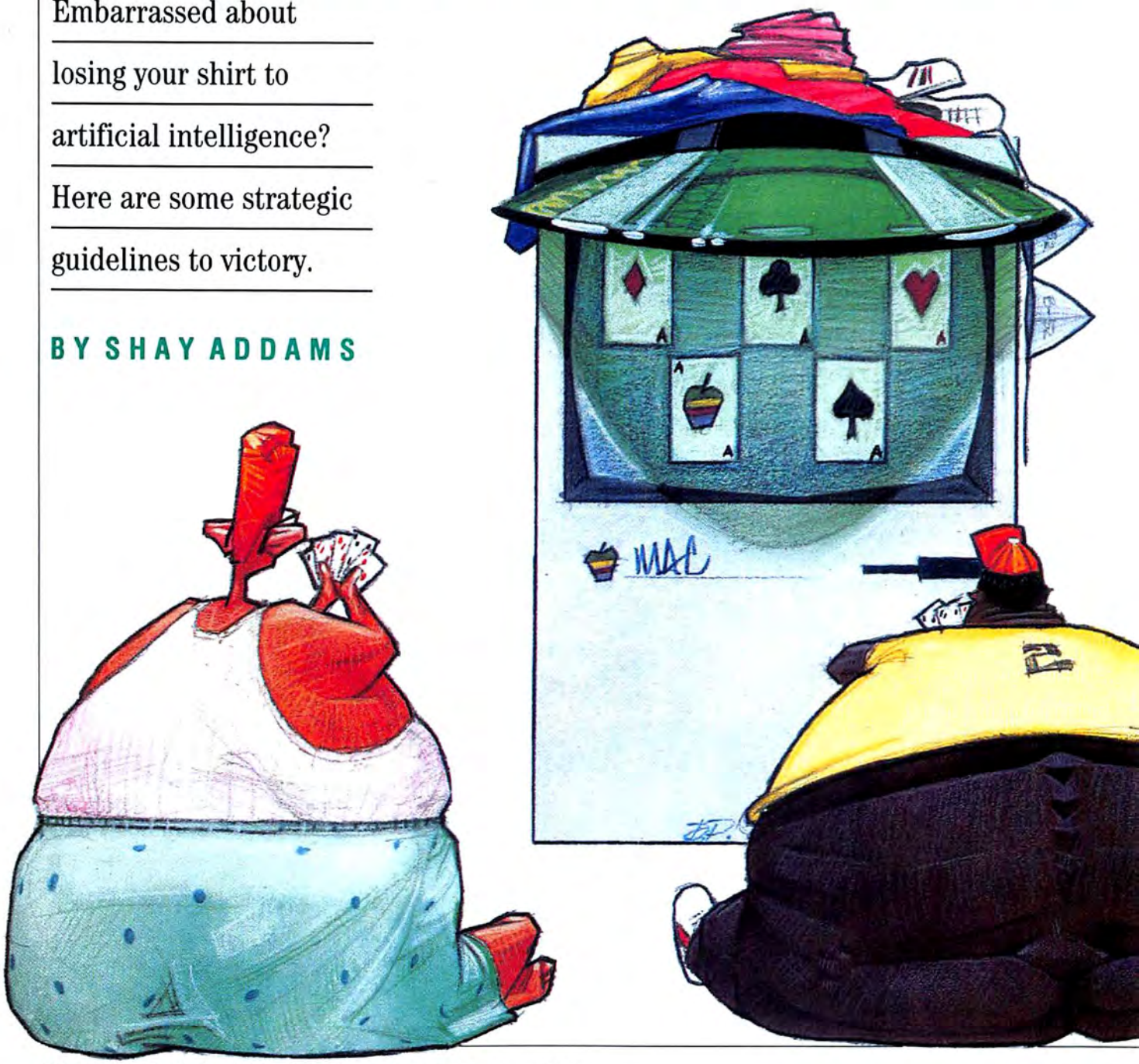


All the spells that the Mage has acquired so far are available through the Spells menu. Those incantations our hero still hasn't bought are grayed out.

WHY IS THIS GAME SMARTER THAN I AM?

Embarrassed about losing your shirt to artificial intelligence? Here are some strategic guidelines to victory.

BY SHAY ADDAMS



OUTSMARTING THE ENEMY IS half the battle in any strategy game — but what do you do when the opponent's "brain" is an artificial intelligence that taps the rapid-fire calculating ability of the Macintosh? You study the games. You look at how they were designed, how they were built, you look for flaws. While the computer can calculate options faster than you can, it ultimately lacks flexibility. And that's where you'll find your edge. If you look for it.

Chess programs typically use a brute force approach to picking their next move. They look at every possible move and track them all on a search tree. The computer considers every response it could make to your move, examines your countermoves to each of those and so on for the next four to five rounds. Then it "weights" the resulting positions by assigning points to factors such as control of the center squares, mobility and material to find the best possible lines of play. In plays that would involve a capture or check, the program searches even deeper. Ultimately, it chooses the move that would afford it maximum potential gain, while restricting you to the least possible gain.

Psion Chess claims to use artificial intelligence techniques to make it even tougher than other chess games. It performs selective searches and discards obviously bad moves earlier. The result is the search tree is smaller, so the program can search deeper. *Psion* plays a nearly peerless tactical game. What this means is that if the program sees it can take a piece, it does; otherwise it plays for position. It will exploit your mistakes, but it does not try to trap you.

How can you hope to defeat such massive computing power without resorting to the "take back the latest move" feature 97 times? By focusing on things you can do that the computer can't do or doesn't do as well. In chess, you can devise a long-range strategy, while the program considers only the next few turns. The game will sometimes look at pawn structures and form a long-range plan, but it generally doesn't. Here's a good strategy suggestion from Richard Lang, the author of *Psion Chess*. "Overall, computer chess programs are susceptible to a long-range, planned kingside attack — use a sacrifice to weaken it on that side by drawing pieces away, then pile up more pieces there until you have a strong attack."



DON PACE

CHESS IN THE TWILIGHT ZONE

Archon looks like an ordinary chessboard, but the pieces are trolls and unicorns, while your king is a spellcasting wizard and the opponent's is a sorceress with magical powers. When you move a piece onto an enemy-occupied square, you have to fight for it in a combat arena where the pieces are transformed into animated characters controlled with the mouse, keyboard or a joystick. To complicate matters, some squares shift from white through shades of gray to black, then back to white, and the strength of each piece changes according to the color of the square it sits on.

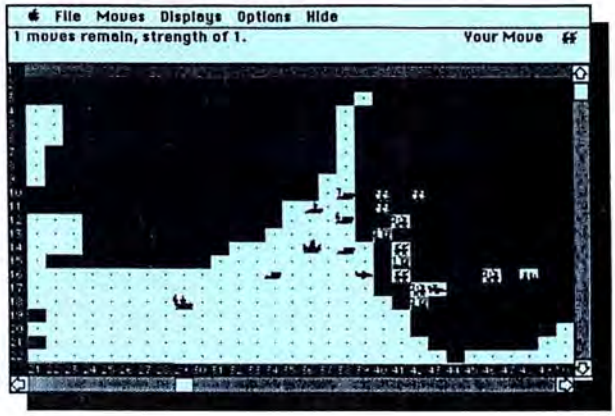
Archon relies on a point system to evaluate its possible moves. Each square is assigned three point values that are determined by its location, current color, and the type and condition of a piece if one currently occupies the square.

This is how it works: White, which would consider moving to a white square a favorable move, views it more favorably if the white square is occupied by a dark piece, especially a wounded one — but would judge moving to a dark square occupied by a dark piece a less favorable move. The computer ponders each of its piece's potential moves and how it would affect the entire position in terms of points at the end of the turn, then chooses the one that results in the highest point total. Before moving, the program checks to see if any spells should be cast. For example, it is programmed to throw a series of spells at a wizard that has moved off its power position. If a white piece gets too close to its home base and certain other criteria are met, there's a 25 to 50 percent chance it will cast a spell. If no spells are called for, it goes ahead with the selected move.

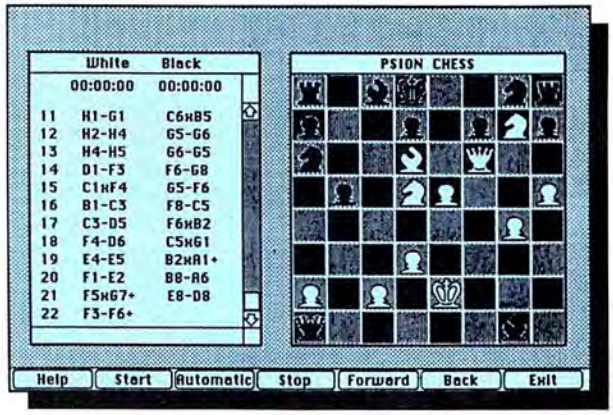
With the knowledge that the computer prefers to attack white pieces on black squares, you can lure its strong pieces away from an area you're developing. A good way to get the Shapeshifter out of your hair for a few moves is to station a few Knights on black squares; you'll probably lose them, but while the computer is capturing insignificant squares you can swoop down on strategic territory in the center of the board. An unorthodox move, and my favorite, is to move the Wizard into the center on the second move, after teleporting a Valkyrie into his rear rank to kill a Dragon on a white square. The computer casts three spells in a row at the Wizard, who, sitting on white, is powerful enough to defend himself from attack. While the computer wastes time with spells, I'm developing my position by moving three more strong (missile-firing) pieces into the center.

Like chess-playing games, *Archon* doesn't think strategically — so you should. As part of a general plan, try to get at least two strong pieces within range of the sorceress; use the first ones to wear her down, then move the others in for the kill. Cover the other power points before trying to take the one held by the sorceress. Since that square remains black, you will have trouble holding it if you

WHY IS THIS GAME SMARTER THAN I AM?



In *Strategic Conquest*, the black forces (played by the computer) are outflanked by transports landing troops in two places. They're supported by a submarine and a battleship.



Several sacrifices have led to this winning kingside attack for White in *Psion Chess*.

take it first. Capture the other power points while they're white or gray, and you'll find them easier to defend than the black square. You can learn an important tactical lesson by watching the computer's play: it always moves as many of its pieces onto black squares as soon as possible, and you should do the same with white. (This advice applies to the two-player option as well as solo games.)

A GAME WITH A MASTER PLAN

A war game spread across a scrolling map dotted with islands and continents, *Strategic Conquest* pits you against a computer general whose creator, Peter Merrill, says thinks the same way a human does. It looks at the situation beginning from the big picture, then works down to the individual moves.

A good strategy for winning developed in the early design stages and the game's "strategy unit" was taught how to play this strategy, the questions to ask itself after examining all the information, such as the locations of enemy cities, ships, planes and other units.

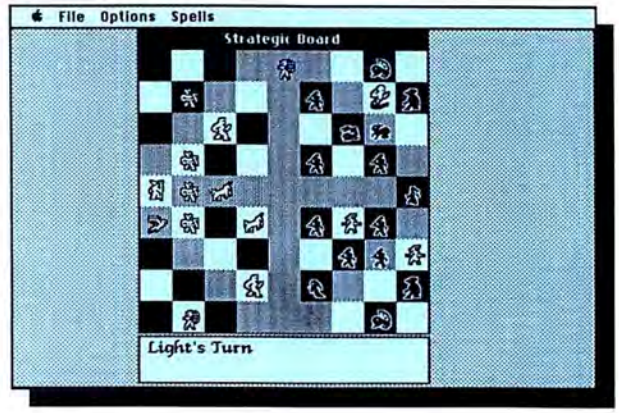
Strategic Conquest's master plan begins with a global assessment, surveying the geographical layout for an island that makes a good prospect for invasion. Then it decides which of its pieces are closest and figures the most efficient way to execute the plan. Island by island, city by city it expands its empire, while you do the same. Eventually your forces collide and the war phase commences. In war, the strategy unit follows definite rules, principles that include concentration of forces, protection of supply lines, and the need to sever the enemy's supply lines, and, especially, destroy its troop transports. Later in the game it examines the terrain and the position and route of your pieces and tries to guess where your main strength lies so it can go after your home base. Again, you can profit by observing the computer's play. For example, it sends destroyers to the opposite side of an island it is invading, knowing that's where to find your transports if you're attacking the same island.

In addition to "knowing" a successful strategy, one of the computer's strengths is its ability to systematically scan an area for targets. To beat this sort of opponent you'll need to take advantage of something that humans have in abundance and computers totally lack: creativity. We can come up with other strategies — two-pronged attacks and diversions — while the computer is stuck with one. To beat off major invasions, develop a punch. Move a carrier close to shore and scout around, send in bombers to take out a few cities, then bring in four or five transports at once and hope to overwhelm the enemy.

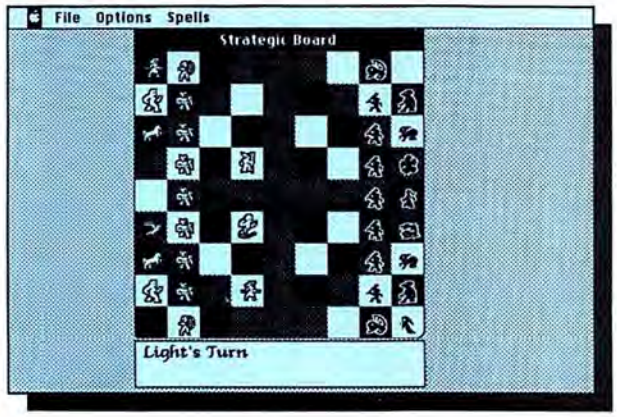
My victories have centered on avoiding confrontation as long as possible while building an effective army, navy and air force. Use mixed weapons in an attack — send fighters in to support armies or to make sure there's a clear path for bombers to follow to a target. If you're on the defensive and can't conquer new cities that will produce more weapons, the game is lost except for that rare stalemate.

EIGHT GENERALS

In *The Ancient Art of War* your troops wield swords and bows, and



In this screen from *Archon*, notice how White's missle-firing pieces dominate the central squares. White also has three strong pieces within range of the Sorceress.



By moving the Wizard into the center on the first move in this game of *Archon*, White has achieved a big development lead.

the "computer general" will be one of eight leaders whose genuine military style is programmed into the game's strategy. The program cycles through an eight-step process to determine each move. First, it uses pattern recognition and pattern analysis to create three categories: which of your squads to attack, which unoccupied strategic location to take, and which occupied location should be fortified, weakened or abandoned. Then it assigns priorities to these, depending on which of the enemy leaders — from Napoleon to Geronimo — you have selected as an opponent. It decides how many squads to assign for each of the three categories and considers the terrain, your position and other factors to narrow down the possibilities and select the best move without having to look at all combinations.

Each of your eight computer opponents deploys squads according to a distinct plan. Napoleon likes to attack a fort head-on, while Sun Tzu might attack a nearby village first to cut off your supply lines. Either might adjust things slightly and play differently the next time, since there are advantages and disadvantages to any possible move.

The computer's main advantage is that it can think a lot faster and already knows a battery of strategies. Your only hope of winning is to come up with a better plan, and you have to adjust your strategy for each opponent. Pay careful attention to each of the computer's general basic strategy given in the manual. Consider terrain factors if time is vital, and use the Info option to study the strength of enemy squads before picking a target.

LET'S MAKE A DEAL

As President of the United States or General Secretary of the USSR, you'll negotiate, not fight, with an artificial intelligence in *Balance of Power*. Both sides try to win geopolitical prestige points by influencing other countries with military and economic aid, by signing treaties and similar friendly actions. When either side's action triggers a world crisis, you go head-to-head in a contest of wills. Whoever backs down loses the crisis, and — because crises are worth more prestige points than anything else in the game — successful crisis negotiation is essential to victory. The key is understanding how the computer decides whether to escalate or back down.

In the manual, designer Chris Crawford explains how the game thinks. It attempts to anticipate your priorities by studying your record of relations with the nation in question. If you've established a history of supporting the Salvadoran government, it thinks you must care enough about the country to go to war over the crisis caused by its aid to the rebels there. In that case, it is likely to back down (if it doesn't care as much about the issue as you do). You can anticipate the computer's actions by studying the history charts, a separate collection of line graphs showing both sides' record of relations with each nation. By playing along with the way it thinks, you can outsmart the computer player. Another way to read the computer's mind is by studying the way it phrases its statements: notice how differently it acts after calling you an imperialist than it does after labeling you a capitalist.

By reviewing the way these five games think, you'll wind up with a set of principles that are applicable to any "smart" game. First check the manual for clues on how the program thinks. Observe and analyze the computer's tactics and strategy (if it has one) and learn its strong points and weaknesses. One way is to move a piece so that an enemy's unit is between your piece and a valuable position (like a fort or center square) to see which one it attacks. Use your observations to manipulate the computer with sacrifices, diversions and other maneuvers. Be devious, a skill at which we underhanded humans can still outpace the fastest computer. Above all, formulate a long-range strategy and a back-up plan in case something goes wrong.

SHAY ADDAMS IS A FREELANCE WRITER AND COMPUTER GAME EXPERT.

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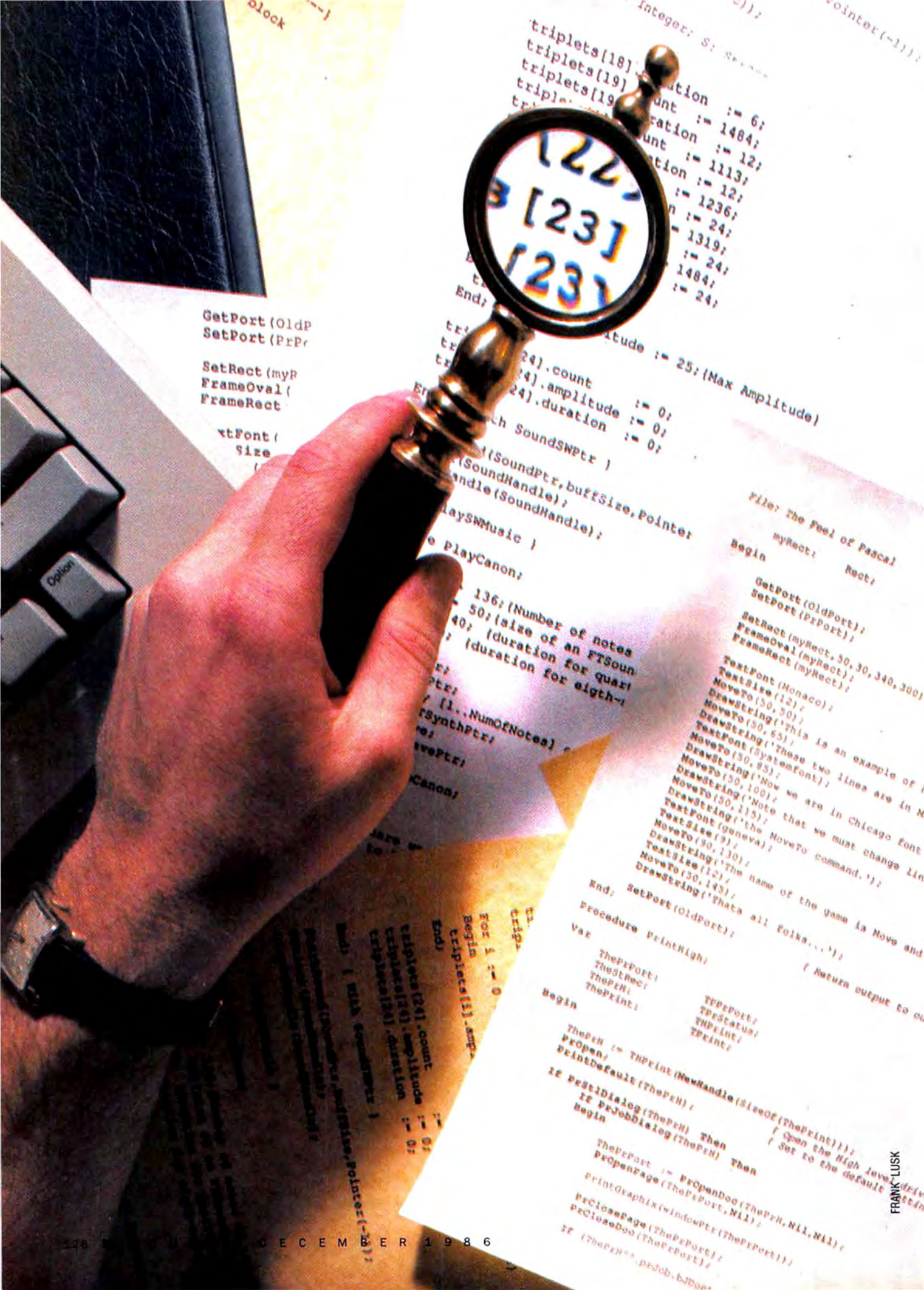
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THE SECRETS OF PASCAL

How not to be overwhelmed by a programming language.

NO, YOU'RE NOT GOING TO learn Pascal in the next 2500 words. It won't happen; trust me.

But maybe, just maybe, this article will make the going a bit easier, a bit less painful. Not a lot, just a bit.

Pascal, like most compiled languages, is a big, mean, hungry dog. Throw the dog what it wants and it'll do tricks. Throw the wrong thing and you're lunch.

This article is "How not to be lunch."

Let's look at it from the point of the Pascal compiler. Let's say this line of code shows up:

```
Result := 2 * 5 - 3;
```

What's the value of Result? 7? 4?

It's 7, because multiplication has a higher "precedence" than subtraction. (To remember the order of operations, think "My Dear Aunt Sally." Multiply, divide, add, subtract, in that order.)

We could have made it more explicit (to us, anyway) by writing:

```
Result := (2 * 5) - 3;
```

But both lines would "look the same" to the compiler, because the compiler has the "rules of precedence" built-in.

Here's a secret. This line:

```
Result := (((((2 * 5))))) - 3;
```

is also perfectly proper, and just like the other lines. Silly, but proper.

If you've programmed in BASIC, you're probably befuddled by all the BEGINs and ENDs in Pascal. Here's the key: BEGIN and END are just like "(" and ")". No diff. They group statements together. They say "Do all these things before going on to anything else."

The lines:

```
FOR x := 1 TO 10 DO
BEGIN
a := a + 1;
b := b + 1
END;
```

are the same as

```
FOR x = 1 TO 10 DO
BEGIN BEGIN BEGIN BEGIN BEGIN BEGIN
a := a + 1;
b := b + 1
END END END END END END;
```

in both cases, a and b are incremented by 1.

But they're *not* the same as:

```
FOR x = 1 TO 10 DO
a := a + 1;
b := b + 1;
```

This time, without the BEGIN-/END grouping, variable a gets incremented by 10 and b is only incremented once! Think of it like this:

```
FOR x = 1 TO 10 DO a := a + 1;
{and then, when you've finished that, do this:}
b := b + 1;
```

Tricky, huh?

The Pascal compiler trys to figure

BY DOUG CLAPP

out what you want. It needs to know which statements should be grouped together, and which are separate. Pascal wants BEGINs and ENDs. C wants curly braces: { and }. Same thing, different notation.

Where can a
BEGIN
<bunch of statements>;
END
construction go? Anywhere — *anywhere* — a single statement can go. Just as you can stick a (1+2) expression inside another expression.

Just to make things interesting, there are two constructions in Pascal where BEGIN and END aren't paired up: RECORD definitions and CASE structures. Both still need END, but neither need BEGIN. You can think of RECORD and CASE as stand-ins for the ubitquitous BEGIN. Like this:

RECORD
a: point;
b: point
END;
and
CASE x of
1: a := b;
2: a := c
END;

The Pascal compiler also needs to know where lines end. In BASIC, things are simpler (at the expense of expressiveness, it must be said). In BASIC, a line is complete when you press Return. You can't see the Return character on your screen, but the BASIC interpreter sees it.

In BASIC, you can use a colon to separate statements on a single line. In Pascal, the end of the line, the statement separator, is the semicolon. Semicolons are large windswept rocks. Between the rocks are skeletons of Pascal programmers. Novice programmers, intermediates, and even highly paid professionals. People with degrees in Computer Science.

The flexibility of Pascal fools people. When most people see this:

IF a <> b THEN
this := that
ELSE
this := something else;

they think: that's four lines. One, two, three, four.

Wrong.

It's one line:

IF a <> b THEN this := that ELSE this := something else;

Notice the semicolon? There's only one, because it's a single line!

Don't be fooled by fancy "pretty printing" of Pascal code. And don't wildly strew semicolons around, in hopes of "getting it to compile, dammit!"

Think of Pascal statements as sentences. When the thought is complete, before you take a breath for the next sentence, WHAM — that's where the semicolon goes.

With that in mind, this is wrong:

IF a <> b THEN; {Wrong! Barf!}
this := that; {Uh-uh}
ELSE; {ELSE is never followed by a ";"!}
this := something else; {Finally a properly placed ";"}

The form doesn't matter; only the semicolon matters. If you want to be weird, you can write:

IF
a
<>
b
THEN
this := that
ELSE
this := something else;

And it's legal as aspirin.

Unfortunately, you can also write long, tortured, fiendishly complex sentences in Pascal, just like you can write windy, verbose, absurdly long and boring sentences in English and, we'll assume, in many other languages, but even so it's gotta end somewhere and in Pascal it's done with a semicolon and in English it's done with this:.

Now chew on Figure 1 for a while. It's a chunk of Steve Chernicoff's *MiniEdit* program, from his book *Macintosh Revealed*. It's good code (and a good book) but it...ah ...takes some getting used to.

First, notice that Chernicoff

```
BEGIN {DoStartup}
  CountAppFiles (theMessage, nDocs);
  if theMessage = AppPrint then
    BEGIN
      ignore := StopAlert (CantPrintID, NIL);
      ExitToShell
    END {if}
  else if nDocs = 0 then
    DoNew
  else
    for thisDoc := 1 to nDocs do
      BEGIN
        GetAppFiles (thisDoc, docInfo);
        with docInfo do
          if fType = 'TEXT' then
            BEGIN
              OpenFile (fName, vRefNum);
              ClrAppFiles (thisDoc)
            END {then}
          else
            BEGIN
              ParamText (fName, '', '');
              ignore := StopAlert (WrongTypeID, NIL)
            END {else}
      END {for}
END; {DoStartup}
```

Figure 1

WHAT IF YOU DON'T HAVE YEARS TO LEARN PASCAL?

Well, there's always the backdoor approach. Instead of trying to learn Pascal, learn about Pascal compilers instead. Know the compiler and you'll pretty much know the language. It's somewhat like learning Latin to understand English.

Look in the "advanced computing" section of any good bookstore to find books on language compilers. Better yet, get a library card at your nearest university and plunder the stacks. It's not necessary to learn enough to write a Pascal compiler — that's post-graduate work! Just skim a few books to get a feel for how compilers "parse" text files to produce machine language "object files." That alone should keep you off the rocky syntax shoals.

Too much work? In that case, consider diddling somebody else's code. It's easier to modify and change and tweak than to write something from scratch — as true for writing code as for writing anything else. (As Truman Capote said to a movie producer who wanted revisions: "Where were you when the page was blank?") Modify enough and you'll slowly ease into doing it all yourself — from scratch.

Pascal source code is easy to find. You can crib it out of any old (or new) Pascal textbook. For Mac-specific code, download any of the example source code files in Apple's Software Supplement, available on CompuServe, Delphi, or GEnie.

Or invest $19.95 and buy the source code for the full *MiniEdit* program, not just the small routine that we beat to death in this article. It's available on disk from TML Systems, 4241 Bay Meadows Rd., Suite 23, Jacksonville, FL 32217, (904) 636-8592.

Still too much work? Then how about the ultimate (for now, anyway) entertaining compiler tutorial? It's a public domain program called *MiniAda*.

MiniAda is a "visible compiler." It accepts text files in a "made-up" language that's similar to Pascal. As the compiler crunches along, you can watch it parse lines, build symbol tables, manage the stack, and other nerdy compiler things that sound baffling, but really aren't. There's even an animated display to accompany the "lexical analysis" of the file. It's educational. It's fun.

MiniAda can be found on the major information utilities, or in many user group libraries.

thoughtfully "commented his ENDs." There're a lot of ENDs in there. It's easy to get confused. You should also comment ENDs. (Some programmers, in fact, immediately write END after each BEGIN, then fill in the middle with statements. That way, they never forget to add the END. Not stupid.)

Just for fun, let's write the code as shown in Figure 2. Still legal, but no fun for humans. Now, how about the code in Figure 3. This formatting makes more sense: every line ends with a semicolon (except for a line that didn't fit across the page). For instructional purposes, read the above code out loud. End the sentences when you get to the semicolons. Pause.

Breathe. Read another "sentence." Does it help?

Maybe the first way (with a slightly different format) is best. This time *you* match the ENDs and BEGINs. The resulting code is shown in Figure 4.

Ponder this code. Notice how BEGIN and END group statements. Think of the havoc you can produce with "unbalanced" BEGINs and ENDs. Study the semicolons. Be wise and prosper.

The format of Pascal code is almost a religious issue among programmers. I sent a copy of this article to Bruce Webster (*BYTE* columnist and famous Pascal authority) before sending it off to *MacUser* — so Bruce could correct any obvious boners. He offered his own formatting of Chernicoff's code. It's shown in Figure 5.

Bruce calls the format a "compromise I've reached between nesting and indentation; it gets a lot on a single screen while preserving the structure of the code. I also prefer to put reserved words in lower case; they don't shout at me quite so much that way." And it is nice, isn't it?

PROCEDURES AND FUNCTIONS

Now, what about procedures and functions? They're conveniences. Semicolons and BEGIN/END make things easy for Pascal compilers. Procedures and functions make things easy for people.

```
BEGIN CountAppFiles (theMessage, nDocs); if theMessage = AppPrint then BEGIN
ignore := StopAlert (CantPrintID, NIL); ExitToShell END else if nDocs = 0 then
DoNew else for thisDoc := 1 to nDocs do BEGIN GetAppFiles (thisDoc, docInfo);
with docInfo do if fType = 'TEXT' then BEGIN OpenFile (fName, vRefNum); ClrAppFiles (thisDoc) END
else BEGIN ParamText (fName, '', '', ''); ignore := StopAlert (WrongTypeID, NIL)
END END END;
```

Figure 2

```
BEGIN  CountAppFiles (theMessage, nDocs);
if theMessage = AppPrint then BEGIN ignore := StopAlert (CantPrintID, NIL);
ExitToShell END else if nDocs = 0 then DoNew else for thisDoc := 1 to nDocs do
BEGIN GetAppFiles (thisDoc, docInfo);
with docInfo do if fType = 'TEXT' then BEGIN OpenFile (fName, vRefNum);
ClrAppFiles (thisDoc) END else BEGIN ParamText (fName, '', '', '');
ignore := StopAlert (WrongTypeID, NIL) END END END;
```

Figure 3

```
BEGIN {DoStartup}
CountAppFiles (theMessage, nDocs);
IF theMessage = AppPrint THEN
BEGIN
 ignore := StopAlert (CantPrintID, NIL);
 ExitToShell   {don't need a semicolon
                here, because END
                comes next...}
END
ELSE IF nDocs = 0 THEN DoNew
                {no semicolon here.  Don't
                 breathe yet...}
ELSE
 FOR thisDoc := 1 TO nDocs DO
  BEGIN
   GetAppFiles (thisDoc, DocInfo);
   WITH DocInfo DO
   IF fType = 'TEXT' THEN
   BEGIN
    OpenFile (fName, vRefNum);
    ClrAppFiles (thisDoc)
   END
   ELSE
   BEGIN
    ParamText (fName, '', '', '');
    ignore := StopAlert (WrongTypeID, NIL)
   END
  END {Find the BEGIN that this
       END "closes".  Hint: after DO}
END; {and this last END matches
      the topmost BEGIN}
```

Figure 4

```
begin
 CountAppFiles(theMessage,nDocs);
 if theMessage = AppPrint then begin
  ignore := StopAlert(CantPrintID,NIL);
  ExitToShell
 end
 else if nDocs = 0
  then DoNew
 else for thisDoc := 1 to nDocs do begin
  GetAppFiles(thisDoc,docInfo);
  with docInfo do if fType = 'TEXT' then begin
   OpenFile(fName,vRefNum);
   ClrAppFiles(thisDoc)
  end
  else begin
   ParamText(fName,'','','');
   ignore := StopAlert(WrongTypeID,NIL)
  end
 end
end;
```

Figure 5

Procedures and functions, in Macintosh programs, come from three places. The ROM, the Pascal compiler, and you. In the code above, for example, the word ExitToShell is a "freebie." It's a procedure in ROM. Call it by saying its name and zap — you're back to the *Finder*.

You could write your own ExitToShell routine, but you don't need to. It's already written and available, like 500-odd other procedures and functions in ROM. (If you wanted to get fancy, you could write a custom ExitToShell routine and fool the computer into using your routine instead of the ROM routine. If you can do that, you've got better things to do than read this article. Go make an expert system or something.)

In Pascal, procedures "do things" and functions "return things." For example, "HideCursor" is a ROM procedure. It hides the cursor. It doesn't compute a value, it just does something: it hides the cursor. Another routine could be written that hid the cursor, then set a boolean variable to TRUE if the "cursor hiding" routine was successful. That routine would be a function, because it would return a value.

By contrast, in the C language, everything is a function, regardless of whether it returns a value. Which means that instead of writing in Pascal

```
Hidecursor;
```

you'd write

```
HideCursor();
```

And the () would contribute absolutely nothing except "consistent syntax."

Pascal compilers also include many predefined functions and procedures. Again, this is to make life easy for you. SUCC, for instance, means "the next one," roughly speaking. So SUCC(3) is 4 and SUCC('a') is 'b'. You could write SUCC yourself, but you don't need to.

Lisp programmers revel in writing low level do-dads like SUCC that do things like reversing lists, finding the last element in a series, and that kind of thing. You can do the same thing in Pascal, if you wish. Personally, I get tired of writing

```
something := something + 1;
```

each time I want to increment something by 1. So I wrote this procedure:

```
Procedure AddOne (x);
VAR x: Integer
BEGIN
x := x+1
END;
```

With that procedure in a program, and I can write

```
AddOne(some_variable);
```

which makes me happy. There's also SubOne, which is left as the easiest exercise you'll ever see in an article about Pascal.

Programming in Pascal is a process of writing an outline, then filling in the blanks. The blanks usually get filled in by writing procedures and functions. To write a game, you might start with this:

```
Program GAME;
BEGIN
StartTheGame;
PlayTheGame;
SaveTheScores
END;
```

Now all that's left is writing three procedures. Of course, each of those will probably entail writing a few more procedures, and probably some functions, and you'll end up with boxes inside boxes inside boxes, but that's the way it's done. Welcome to Pascal.

And that's it! You now know 95 percent of everything there is to know about Pascal. To learn the remaining 5 percent takes only a few years, 10 or 20 good books about Pascal and immense pain.

But you can do it. And if all *else* fails, remember: "Nice doggy. Goooood doggy...."

ZEN PASCAL

An ancient Zen proverb about learning Pascal:

A programming master and a Pascal student were rowing across a lake. The student asked "Master, when will I finally understand Pascal?"

The master threw the student off the boat then held the student's head underwater. Finally, he let the choking, gasping student surface.

And the master said "When you want to learn Pascal as badly as you wanted air, then you'll learn."

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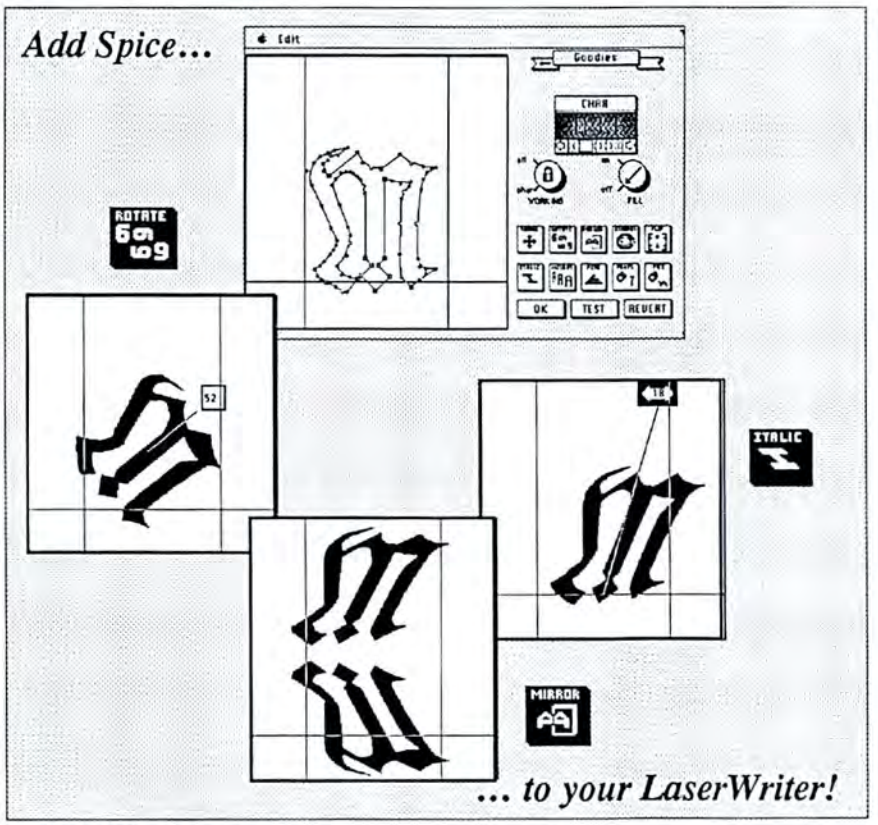
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ZBASIC IS ZMOST!

Compiled BASIC gives you more power than you'd expect.

BASIC IS STILL THE LANGUAGE used by more programmers than any other. More people use BASIC on the Mac than C or Pascal. Probably more people use BASIC than C and Pascal combined. But until recently, the programs were slow and required either that you have the full BASIC interpreter or a special non-programmable, runtime version of the language available on one of your disks. Programmers couldn't create standalone applications.

That's finally changed. Zedcor, creators of *ZBasic*, have released a version for the Mac. It's not merely a straight port from their older systems, but takes good advantage of the Mac's unique features and abilities. Plus it's fast.

PHYSICAL REALITY

The *ZBasic* package consists of a disk and a book-sized manual. The program isn't copy protected. It doesn't have to be. You *need* the manual to work with this language. Also included on the disk are *Edit*, the editor from Apple, *RMaker*, and the *MacInTalk* speech generation file. These are tools that the average programmer will need to make a working application. It's to Zedcor's credit that they are provided on the disk. Too many companies assume that everyone has Apple's Software Supplement available.

As soon as you get started, or actually before that, there's something you have to do. The rather full disk provided only has room for a *MiniFinder*. Not having a regular *Finder* can cause bombs when transferring to another application from *ZBasic*. Therefore, your first order of business is to move *ZBasic* to a disk with a real *Finder*, as the separate errata sheet included with the manual suggests. This requires booting another disk with a full *Finder*, and then making a standard copy of *ZBasic* onto the working disk. *ZBasic* requires at least 512K of RAM.

SCREEN PRESENCE

ZBasic's most used commands are found in its menus. Users can load, run, compile, list and check on memory usage. And while there is a full-screen editor available, it doesn't have to be used to enter program data or changes.

There are other options. At the ZBasic Ready prompt, users find themselves in a command line style minieditor. This minieditor is most useful when running a program under development, and is a real time saver when making small program changes. If *ZBasic* returns an error message when it is trying to run a program, the offending line may be corrected by retyping it in immediately. This is simpler and faster than having to exit *ZBasic*, enter an editor and return to *ZBasic*.

ZBasic has a menu that lets it be configured to your preferences. You can have it automatically convert all lower case typing into upper case, if you wish. Since the keywords of *ZBasic* are *required* to be upper case, some may find this an appealing alternative to the Caps Lock key. The default variable type (integer, floating, etc.) may be configured, as well as the precision of the variables (BCD math precision of up to 240 digits is possible!). And the values for x and y may be reversed for graphics operations.

The full-screen editor is entered and exited by typing COMMAND-E. This editor is adequate for most program entry. It supports Cut, Copy and Paste operations in the standard manner, and selects double-clicked words. Clicking on the vertical scroll arrow will advance the display line by line and single-clicking the scroll area above or below the box will move the screen display forward or back by a full screen. Scrolling is jerky when compared with other editors, and changing a few pages at a time may require waiting through noticeable pauses while the editor catches up.

Zedcor, realizing the limitations of its editor, has also included the fairly common *Edit*. *Edit* is a full-featured editor with a Find command that comes in handy when trying to trace program execution in a listing file that has been saved as text. The Find command makes it simple to find where a program label is in a listing without having to scroll through the entire program.

The built-in minieditor also has a Find command, but it only displays the line that the search string appears in. You can use a desk accessory

BY LARRY LOEB

BART GOLDMAN

ZBASIC IS ZMOST

editor like *Q&D Editor*, but using it while in the *ZBasic* Edit window may cause a crash.

THE DOCUMENTATION

The manual is a critical element of every language package, and a good one is vital when learning a new language. *ZBasic*'s manual is only fair in this regard. The manual (this is the third revision according to the title page) is the one that is used for all of the many versions of *ZBasic*, and has a standard reference section on syntax that is common to all versions. A long and extensive Mac-specific appendix (114 pages) is included, to cover those commands and concepts that differ in the Mac version. What this two-pronged approach to a manual means is that trying to find answers to a question requires searching through the tables of contents for all sections of the manual that might be applicable. There is an index, but it covers only the standard reference section and mostly consists of an alphabetical listing of the *ZBasic* statements.

While the organization of the manual could stand some improvement, the content and writing style are both adequate. Cogent code fragments are included to illustrate points being made in the text. These fragments contain usages of the syntax that often are not obvious from just reading the text. For example, I had a question on how to change the active edit field from within a program. The text portion of the manual ignored this, but hidden in one of the code fragments was an illustration of just the right technique.

New programmers will find the introductory set of chapters most useful, while more experienced programmers will want to check the reference sections to see the differences between this brand of BASIC and what they are used to. The differences tend to be especially important and noticeable in the disk I/O section.

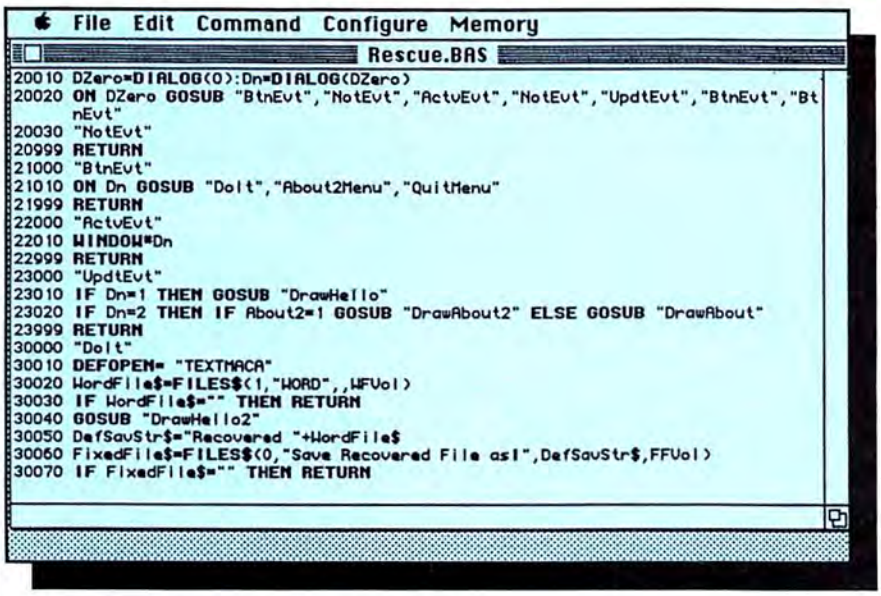
There are, unfortunately, some cases when the manual is incomplete. For instance, the only areas on opening and closing files are found in the generic version section. The Mac-specific appendix doesn't ever contradict the syntax given there for opening and closing files, but that syntax is wrong. You have to append the string ",,VOL%" or similar in order to have a compiled application recognize what disk drive the file is on. The language works fine on this point, but the documentation fails to inform you about these very important points, except in one "hidden" example. *ZBasic* plans to have a revision of the manual done by the end of the year, I am told, so perhaps things will improve or a modified errata sheet will be added to the package.



COMINGS AND GOINGS

There are an awful lot of MS BASIC programs out there. In spite of all the drawbacks that interpreted BASIC has, a lot of people have written a lot of programs with it. And a lot of those programs are pretty good and deserve life as stand-alone applications. I know, I've written a couple myself.

Anyone with programs needing porting over will find the chapter on conversions of *MS BASIC* programs to *ZBasic* required reading. The differences in syntax between the two languages are clearly laid out. There's sort of a "road map" provided that makes conversion far less of a chore than it would be without it. One major change that has to be done is to enclose any program labels in quotation marks. If you've used line numbers instead of program labels, no added conversion may be necessary, although certain *MS BASIC* keywords and file constructs do have to be changed. For example, an IF statement can only evaluate one-deep in *ZBasic*. That is, an expression cannot be evaluated within the *ZBasic* IF statements, and must be explicitly evaluated before encountering the statement. This can lead to massive use of "dummy" variables. Overall, though, conversion between the two flavors of BASIC seems to be fairly painless. Still, you should *not* expect any but the simplest *MS BASIC* program to run unmodified.



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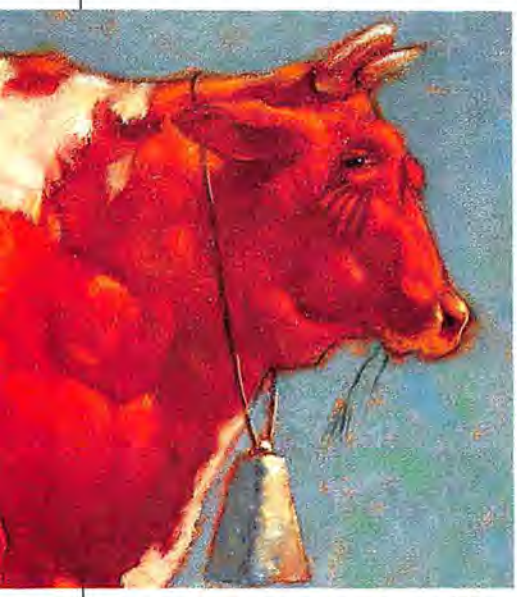
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ZBASIC IS ZMOST



Mac *ZBasic* has enough modifications compared to *ZBasic* for other machines so that portability to the other *ZBasic* will probably be nil; that is, unless you totally ignore the Mac features that *ZBasic* has built into it. This version will handle longwords, for instance. This means that you can call most Toolbox functions without going to the "Varptr%(0)" kludge of *MS BASIC*. You are totally on your own in this, and Zedcor advises that you "use these routines at your own risk." They also reasonably suggest *Inside Macintosh* for documentation on these routines.

The manual also contains a section on creating runtime applications using *RMaker*, and includes a "cookbook" set of procedures to guide the neophyte.

GETTING DOWN TO BASIC

Mac programs are generally interrupt-driven. That is, the programmer sets up the path for the program to take for events (what to do if a menu is selected or a button pushed) and then waits for some event to happen in a loop. The event-handling capabilities of *ZBasic* therefore are important.

If you have used *MS BASIC;* you will be reassured when you find that *ZBasic* has most of the same logical constructs. There is the familiar On Event Gosub type, for example. But *ZBasic only* evaluates for events at the beginning of a statement line (between the Event ON and Event OFF statements), so exactly how you state the event trapping can become important for proper evaluation by the parser. Fortunately, this area is well documented, with many examples.

The event detection capabilities of *ZBasic* are adequate for most uses and allow the development of programs that truly use the Mac interface. *ZBasic* has commands that support the *MacInTalk* speech driver (included on the *ZBasic* disk). AppleTalk commands are also in the language, but the manual assumes you have and understand *Inside AppleTalk,* since the documentation here is simply a list of valid statements and syntax.

A PRACTICAL TEST

It seemed to me that the only way to really evaluate *ZBasic* was to create something with it. I took one of my old *MS BASIC* (version 2.1) programs, *CheckRegister* 3.0 and went through the steps of converting it from *MS BASIC* to a standalone application. The original program did not use any of the Macish features of *MS BASIC* since it was first written when *MS BASIC* didn't offer much in that department. But the program created and maintained its own data base and would be a good test of how *ZBasic* handled the most used BASIC statements.

Conversion of the original version to simply run under *ZBasic* was pretty simple. But then I added buttons, windows, and SFGetfiles to my heart's content. Imagine my surprise when the Macish program, which did run inside *ZBasic*, wouldn't work as a standalone application. After doing the usual debugging tricks, I began to suspect the compiler and called Zedcor. They were both puzzled and helpful. I found out that *ZBasic* likes to have a new window opened before the previous one is closed, but that didn't solve most of the problems. After I sent them a copy of my program, they admitted that there seemed to be a problem with *ZBasic* 3.01 and some of the bugs that are known to be present in the 64K ROMs. After another few weeks of activity on their part (and a missed deadline on mine...) *ZBasic* 3.02 arrived from Zedcor.

It works now, I'm pleased to report.

BIG APPLICATIONS

A *ZBasic* standalone application requires a minimum of 34K for its code kernel. A simple "Hello World!" program takes 35K of disk space as a result. But once this hump is overcome, the compiler seems to generate reasonably compact code from that point on. Zedcor is talking about an upgrade of *ZBasic* that will create a kernel that will contain only the resources that a program actually calls. That would be a nice migration path for the language to take, since the current kernel is invariant, regardless of what the program actually does. Execution time of the application is *fast* compared to interpreted BASIC, just like the ads say.

In summary, I like *ZBasic*. While there are things I would like to see it do better, the ability to generate standalone BASIC applications that use the full Mac interface is one that many people have been yearning for since the introduction of the Mac. *ZBasic* will meet their needs for a fast, simple way to code fairly complex programs and at an affordable price.

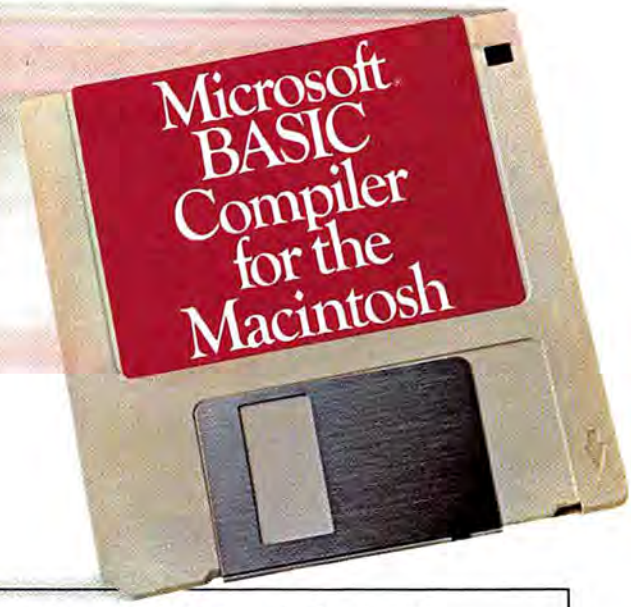
LARRY LOEB IS A CONNECTICUT DENTIST AND PROGRAMMER, NOT NECESSARILY IN THAT ORDER.

ZBASIC

Overall Rating	■ ■ ■ ■ □
Follows Mac Interface	■ ■ ■ □ □
Printed Documentation	■ ■ □ □ □
On-Screen Help	None
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ □

Comments: A fast interactive compiler capable of creating standalone applications. **Best Features:** Speed of resulting programs and easy access to the Toolbox. **Worst Feature:** Somewhat disorganized and incomplete documentation. **List Price:** $89.95. Published by Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. (800) 482-4567 for orders, (602) 795-3966. Requires 512K+. Not copy protected.

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TIP SHEET

Found a trick, shortcut or smarter way to get something done with a program? Share your hints with The Rest of Us by mailing them in to Tips, 25 West 39th Street, New York, NY 10018. We'll pay $25 for every hint we use, plus we'll print your name and hometown in the magazine.

TIP BUGS

They Said It Could Never Happen Department: It seems that we've discovered some bugs in past Tip Sheets.

In our September issue, a tip regarding the RAM caching control in the Control Panel was erroneous. After extensive testing, we agree that the Mac does not have to be rebooted in order for caching to be activated.

Also in the September issue, a FullPaint *tip regarding using the Option key to fill outside of a desired area in does not exist in the release version of the program, although it was present in a prerelease version of the program.*

A typo in the September issue Word *tips incorrectly states that the correct File Type for a* Word *document is WDBM. In fact, that type should read WDBN (thanks to James F. Palmer, Syracuse, NY).*

WORD

When using *Word's* Print Merge function on an HFS disk/volume, make sure that the main document and the merge data file are in the same folder, in order for the merge to work properly.
DAVID BICKFORD
PROVIDENCE, RI

Hold down the Command and Shift keys when opening "About Microsoft *Word*" to see a hidden message.
PAUL GREENBERG
EAST NORWICH, NY

To Copy and Paste selected text in one motion, click where the selected text is to be pasted while pressing the Option key. To Cut the selected text instead, press the Option and Shift keys while clicking on the insertion point.
ROBERT PENNOCK
PITTSBURGH, PA

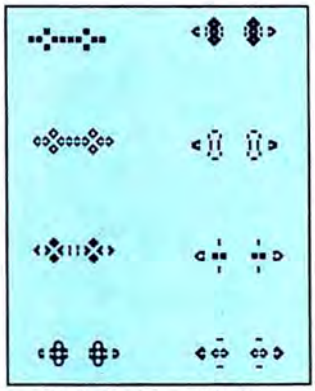
MACLIGHTNING 2.0

If using *MacLightning* 2.0 with a Macintosh Plus, and you want to use RAM caching also, be sure to set the caching control to 128K or less. This will enable the entire *MacLightning* dictionary to be loaded into RAM, to provide optimum functioning speed.
WILLIAM BROWN
WINTER PARK, FL

FULLPAINT

Pressing COMMAND-A toggles between the full screen with menu bar and full screen without menu bar.
STEPHEN POKEN
WHITE PLAINS, NY

To paste something into the upper left corner of the active window (instead of the center, which is the default area), hold down the Option key while Pasting.



Each Pixel Is a Life form.

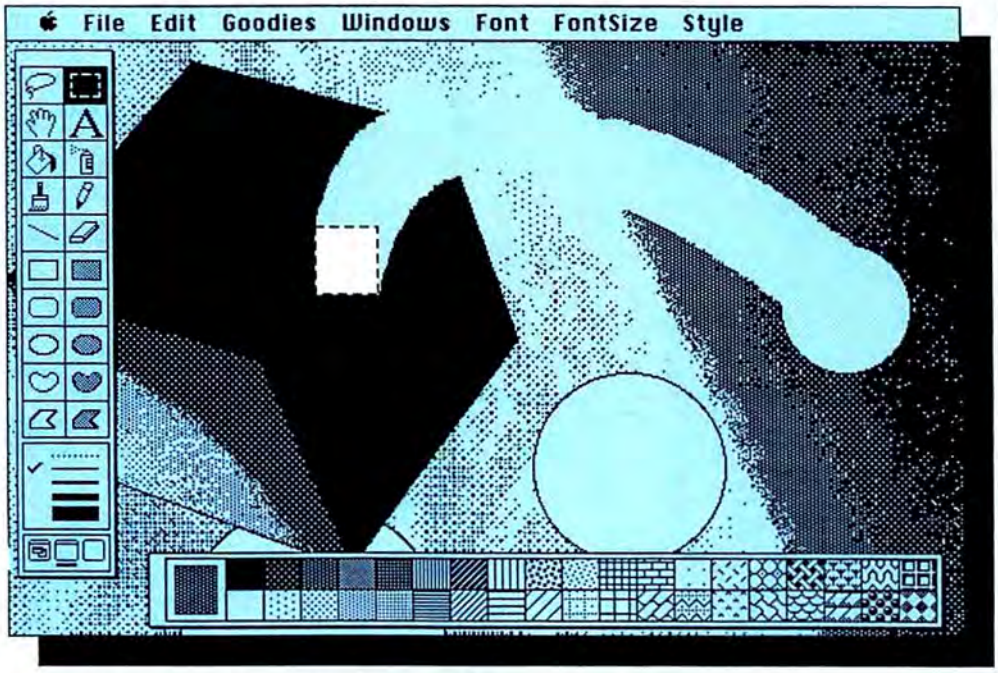
To create a borderless shape (without changing the border width to the dotted line), press the Option key while drawing the shape.
ERIK FORMAN
WHITE PLAINS, NY

FullPaint's lasso tool is smarter than it looks: to select an object that is stuck in a tight spot, double-click the loose end of the lasso directly on the object, and it will be selected.
JOHN STONEHAM
CUPERTINO, CA

Fans of the mathematical/cellular automata game *Life* will be interested to know that the game is actually built into *FullPaint*. Create a *Life* form with either the paintbrush or pencil tool, select it with the selection marquee, and press COMMAND-OPTION-L. The life form will advance one generation each time the above combination is pressed.
BRUCE SPECTOR
LOS ANGELES, CA

PAGEMAKER 1.2

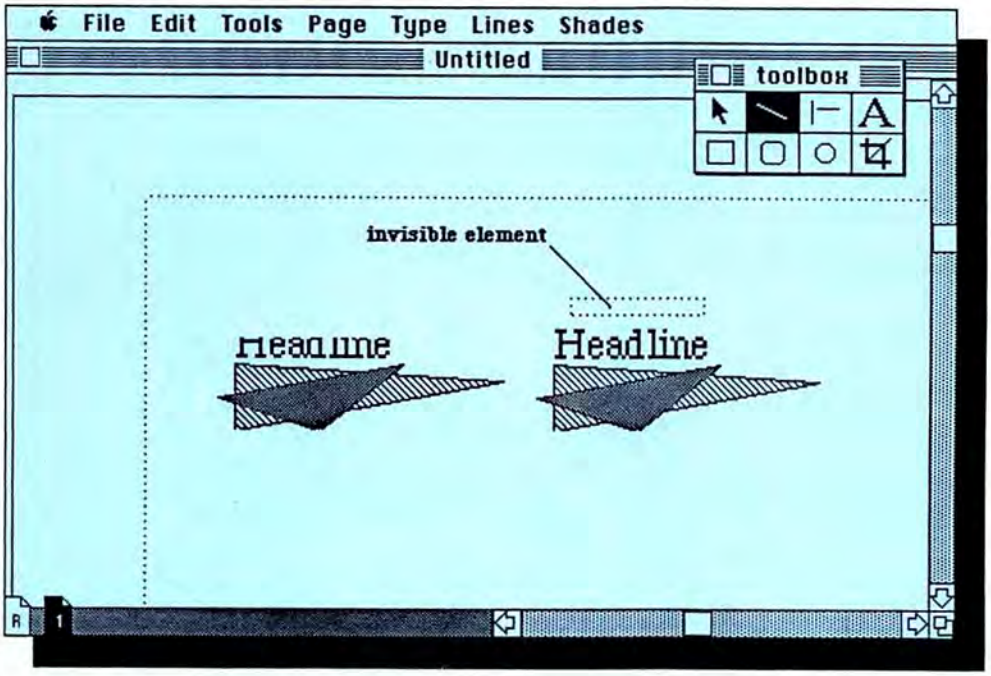
If a continued text handle (the one displaying



To create variably sized erasers, use the selection marquee to define the size of the area, press the Command and Option keys, and use the selected area as an eraser.
HENRY SCHNEIDER
HOUSTON, TX

Compiled by David Biedny

When opening PICT files from within *PageMaker*, a bug sometimes surfaces that clips off the top part of a graphic, specifically if it consists of a text element placed above graphics. To work around this bug, place a shape above the text, and give it no line fill and no fill pattern. *PageMaker* will pick up the shape, and the text below it will appear in its entirety.
KATHRYN DAVIES
MISSISSAUGA, ONTARIO



a "+" sign) is clicked accidentally, the text doesn't have to be placed on the paste board (the areas to the sides of the active page). Instead, to deactivate the continuation procedure, simply click on any of the tools in the toolbox. The original text block will remain unchanged.
ABBY MINYZ
SAN JOSE, CA

TEMPO

To achieve maximum speed in your macros, minimize the use of the mouse to select menu commands; use Command key combinations where possible. Another good tip: *Tempo* can be programmed to beep after running a macro. In order to do this, the application that the macro will be running in should have a Save As... command under its File menu. The current file should also have been saved to disk at least once. Once the main part of the macro has been programmed, select REAL TIME recording, choose SAVE AS..., and press the Return key. After the beep sounds, select CANCEL. Then, stop the recording process. If this is made into a separate macro, it can be branched to from any other macro, in order to have the Mac beep after the macro is finished.
BRUCE LONG
TEMPE, AZ

FINDER

When backing up information residing on floppy disks, use the View by Date mode to determine which files have changes and need to be backed-up. The disk that the files are being backed up to can also be viewed, in order to precisely determine which files have changes in them since the last backup session.
DOUG WYATT
ITHACA, NY

EXCEL

When importing *Lotus 1-2-3* worksheets through a modem from a PC, be sure to use XMODEM, and if the terminal program on the Mac has selectable MacBinary, turn it off. If XMODEM is used, only 7 of the 8 data bits per byte will come through, rendering the transfer useless. If MacBinary is used, the first 128 bytes of the files are lost.
S. C. HUNTER
MISSION VIEJO, CA

FILEMAKER PLUS

Use the OPTION-SPACE key combination instead of just the Space bar when entering multiple-word phrases to be used as search identifiers. That way, the words will be indexed as one, allowing searches by combinations of portions of all the words. For example, if "Here Comes the Sun" is entered as separate words, each word will be individually indexed. By pressing OPTION-SPACE after typing in each word, the phrase can then be searched by "Here comes" or "The Sun".
S. C. HUNTER
MISSION VIEJO, CA

MINIFINDER

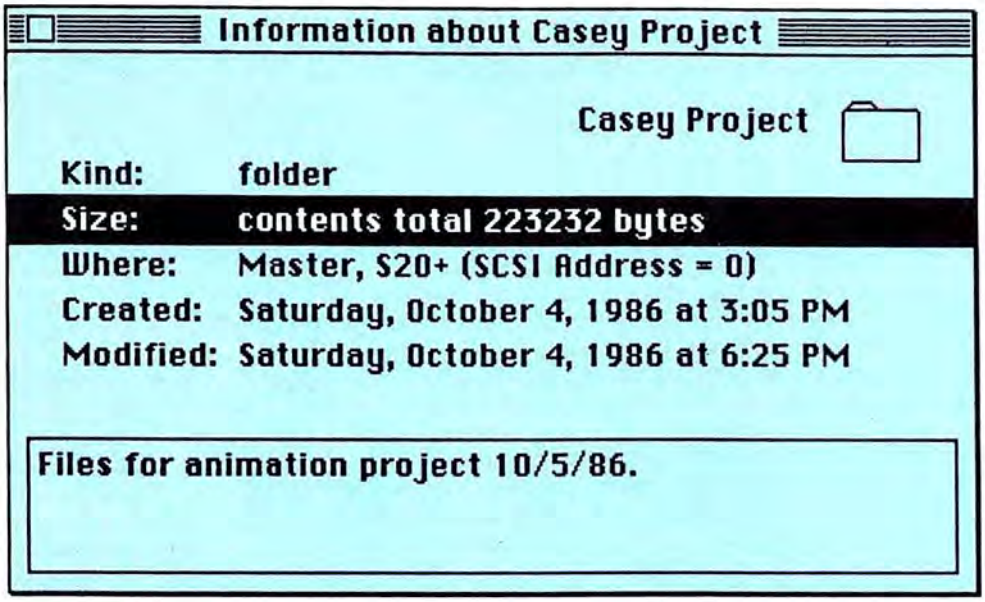
Make sure that the *MiniFinder* icon is placed into the System Folder, otherwise it will have problems displaying installed application icons in its window.
THOMAS KRASOMIL
LONGMONT, CO

APPLICATIONS

If you use more than one printer, always remember to select PAGE SETUP in applications after you've changed printers. Applications remember the imaging rectangle they can print to, and it shrinks or grows depending on the printer selected. This is why letters are sometimes cut off at the edges of an imaging area.
TOM EVSLIN
MONTPELIER, VT

JAZZ

In a database report, empty cells print as zeros. To remedy this, enter an OPTION-SPACE in any cell that is to be blank on the report printout.
VINCE DEL VECCHIO
HONG KONG



FINDER 5.X

The size of a folder isn't normally displayed in the directory window, under any of the View modes. The Get info command has the folder's size information.
JEFFREY PLEIMLING
ROCHESTER, MN

The easiest way to eject both disks simultaneously is to press COMMAND-E for a few moments (without selecting the disk icons). Both disks will be ejected.
ALTUG ULKUMEN
GENEVA, SWITZERLAND

Hold down the Option key until the Menu bar appears as you quit an application. All open folders will be closed and you'll wind up at the root directory level.
LYNN FRANKEL
ENGLEWOOD CLIFFS, NJ

EXCEL

One way to highlight a very large number of cells is to click on the top left cell of the desired range, choose the GOTO... command under the Formula menu, specify the lower right cell of the desired range, and press the Shift key while clicking the OK button or pressing the Return key.
JEFF MATHEWS
PLACENTIA, CA

When copying a group of cells to be used in a page layout, highlight the cells, and press SHIFT-COMMAND-3. The cells, divider lines and any other copied information will be converted to QuickDraw, so that when pasted into a page layout program, or a word processor, it

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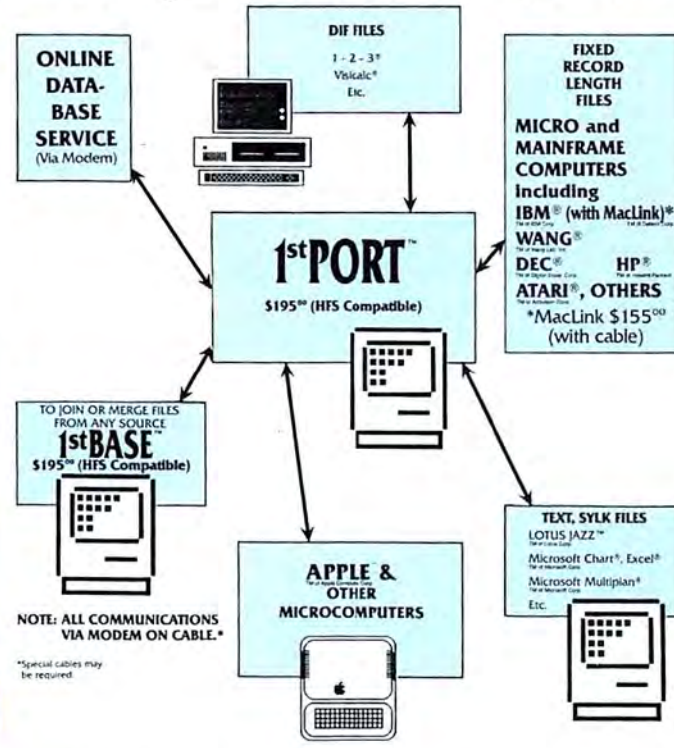
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GAYS MILLS, WI

MACDRAW

In order to center any of the primitive objects (circle, rectangle, rounded rectangle and polygon) on a point, draw the object, Cut or Copy it, click the pointer where the object's "center of gravity" is to fall, and Paste.
BOB WALLIS
NORCROSS, GA

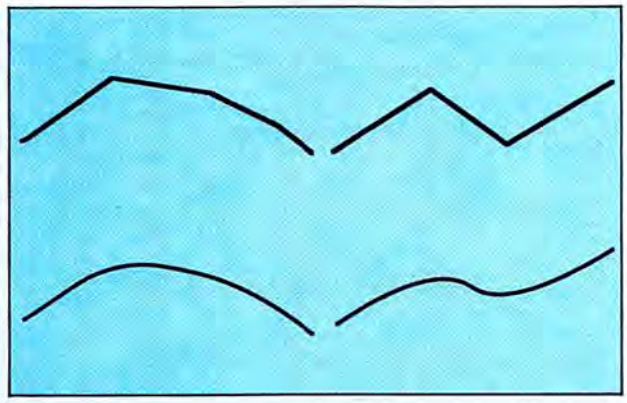
HFS SYSTEM 5.X

This only works if at least two volumes are mounted. To get to the top level of any mounted disk, Tab around to it. For example, if you have only hard disk mounted and one floppy volume and you're way down deep in the folders and need to get to the top level, the fastest way is to hit TAB twice rapidly. The rule for getting to the top level of the disk that is currently active is to quickly tab X + 1 times, where X is the number of disks mounted, including floppies. That means if you have two hard disks chained, and have mounted three floppies (and left all of them mounted), you'll need to Tab six times to reach the top of the current disk.
JIM HU

MACDRAFT

If a document saved from *MacDraft* has the same name as a *MacPaint* document in the same folder/HFS level, the newly saved document will not be accessible from *Draft*. The data is there — the problem is that it still has the *MacPaint* creator and file types. In order to open access the document, use a file editing program such as *MacTools* or *Fedit*, open the file, and change the creator to MDFT and type to DRWG. *MacDraft* will now recognize the document.
ROBERT MCMAHAN
HOUSTON, TX

Although *MacDraw*'s arc tool is limited in terms of the variety and complexity of arcs it can generate, complex arcs can be created by using *MacDraw*'s smoothing functions. Using the polygon tool, draw a two vector shape, and select SMOOTH from the Edit menu. Experiment with different shapes, and shapes made up of more than two vectors.
RICHARD SMITH
AZUSA, CA



FONT/DA MOVER

This one only works with version 3.2 or greater. If you are replacing a DA with one of the same name (possibly a newer or later version), you no longer have to remove the old DA first. Simply copy the new version over (and as long as the name is exactly the same), it will replace any existing version in the system.
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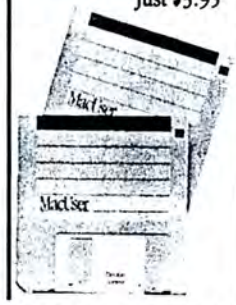
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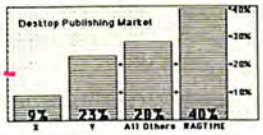
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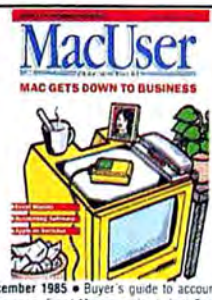
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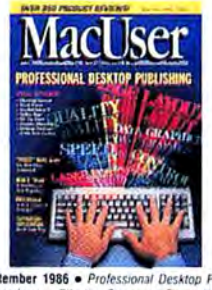
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by Dan Cochran

ANSWERS FROM THE MAC TEAM

Got a Mac problem? Something that you'd like explained? Something you can't find the answer for anywhere else? Apple's Dan Cochran will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Dan care of MacUser, *25 West 39th Street, New York, NY 10018. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries. Watch this space for the pick of each month's Q & A crop.*

I Get Reader Mail, Too

In the August *MacUser* I suggested using the Zapf Dingbats font as a source for those who'd like to generate a basic box in an outline form. Robin Shank from New York has a more specific solution. Using the Zapf Dingbats solid box (■) in outline form (□) fits the bill perfectly. You might want to copy this character to the Scrapbook and paste it in whenever you require it.

It's also easy to overlook the obvious. Ray Davis (August *MacUser*) had a stuck clock, even after changing his battery. As I pointed out, this is usually indicative of a bad clock chip. However, Dennis Snow of South Bend, Indiana suggests that Ray double check to make sure the new battery is installed correctly (positive side down). An incorrectly installed battery will indeed result in a "stuck" clock. Thanks for the suggestions—we claim no monopoly on technical expertise!!!

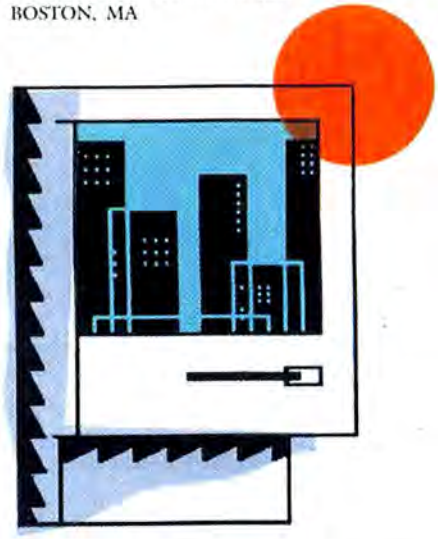
Roger Labas from Greer, South Carolina astutely notes that when *MacDraw* prints out a multipage *MacDraw* document in landscape (wide orientation mode) and when there is more than one row of pages as viewed from the Drawing Size menu, *MacDraw* doesn't assign page numbers from left to right. Rather it assigns page numbers from top to bottom and then skips to the next column. This is a problem, of course, when you wish to paste together or tape together the resulting printed output. In any case, it's not supposed to work that way and we'll correct it in the next version.

Font Differences

Q. Apple recently upgraded their *System* to 3.2. Included were upgrades to the *Finder* and much else, including changes to the Helvetica screen fonts. I'm in an office with four Macs and a LaserWriter. When the users started to switch over to the new files, many of them found to their dismay that the change to the new Helvetica fonts resulted in many of their documents needing reformatting of some type as the new fonts are more spread out.

I have several questions. First, since the LaserWriter fonts are in the LaserWriter's ROM, how can the new system change them? Second, and most important, by this font change Apple created many unhappy people, who had to either edit all of their old documents, or maintain two separate system disks, with the resulting incompatibility. Is there any way around this? Can we expect similar changes in the future?

WILLIAM F. RUSSELL, JR.
BOSTON, MA



A. *The fonts themselves haven't changed. It's the spacing between characters that has. The old LaserWriter screen fonts (Helvetica, Times, Symbol, etc.) had to rely on the version of the Font Manager contained in the old 64K ROMs. This older version of the Font Manager could only deal with character spacing to the level of the resolution on the Macintosh screen. Of course the LaserWriter offers a much greater resolution and readability and we felt that it was important to take full advantage of its capabilities. You may indeed have noticed that some of your old LaserWriter documents, especially those printed in Times, had characters scrunched together.*

The new Mac Plus systems, with the 128K ROMs, include a new Font Manager that handles much greater resolution, so we adjusted the spacing of the LaserWriter fonts to provide better looking output. Yes, your old documents will need reformatting but it would be difficult for us to improve our products if we had to remain compatible with everything we've done in the past (although we certainly try).

Two Questions

Q. Ever since I had the 800K internal drive and ROM upgrade, I've noticed a fairly quiet clicking sound coming from inside the internal drive when I eject all disks. Is there something going on in there, like the head looking for a disk or something? I don't want to leave a disk in the machine for prolonged periods of inactivity, but I also don't want the computer to be sitting there doing something mechanical that could wear it out. Can you tell me what's going on in there?

Also, I have a second question regarding the ImageWriter. Many times I'd like the speed of draft quality printing, but would like a better looking printing style. Would it be possible for me to download custom ImageWriter fonts from a BASIC program, quit BASIC, go to whichever application I needed, select draft quality printing, and use the custom font in the ImageWriter? Or does the Macintosh send control codes to the printer to ensure the default character set is selected?

J. B. MICHAEL
BLAIR, NE

A. *The new 800K internal drives have two heads. The old 400K internal drives have one. To select the second head in the new drive, we "borrowed" a wire that was previously used in the 400K drive to signal the presence or absence of an inserted disk. We now have to regularly poll the internal drive (approximately once per second), to determine whether a disk is inserted.*

A few internal drives (mine included) exhibit the clicking symptoms you describe as a result of this polling. Don't worry about it.

I think that most, if not all, Macintosh applications would indeed send control codes to the printer and defeat your custom font. You could, however, write a BASIC or Pascal program that would download a custom font and then print a word processing file saved as text only, to the ImageWriter. Hardly seems worth the effort

ANDY MARTIN

though. If you have an ImageWriter II, power your printer off and on, use the print quality button to select best quality (a full green bar), select draft quality, use Monaco font, and you'll get a decent looking draft font together with decent performance.

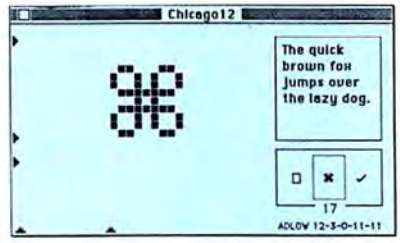
Printing the Command Symbol

Q. I would like to know how to print the Command symbol. None of the fonts I have include it. Any suggestions?
MAXWELL J. RICHARDS
SMITHTOWN, NY

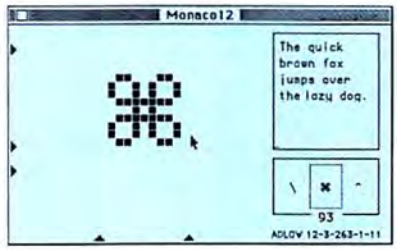
A. *The Command symbol is resident in the System font (12-point Chicago). However, it can't be generated by any keystroke sequences. Using* ResEdit *you can actually see that this character does exist. Start by making a copy of your* System *file (*ResEdit *can mess you up). Start up* ResEdit, *open the System folder, open the copy of your* System *file, open the FONT resource, open the Chicago 12 font, and note the character selection pane that appears below the text pane. You can select and view the Command symbol by continually clicking on the left-most character in the character selection pane until the Command symbol is the middle character in the pane (ASCII value 17). If you get this far you'll see a screen like Figure 1.*

What you want to do is to use this character's definition and move it to a character position that you rarely use. Unfortunately ResEdit *doesn't allow you to copy and paste character definitions so you'll have to redraw it yourself. Use* COMMAND-SHIFT-4 *to do a screen dump of this FatBits-like version of the Command symbol (or simply refer to Figure 1). Now to find an appropriate font and character position to move it to.*

If you have a Macintosh Plus you won't be able to edit the Chicago font because it's in ROM. I suggest placing the new character in the Monaco 12 font to replace the right bracket (]). Close the Chicago 12 window and open the Monaco 12 resource.



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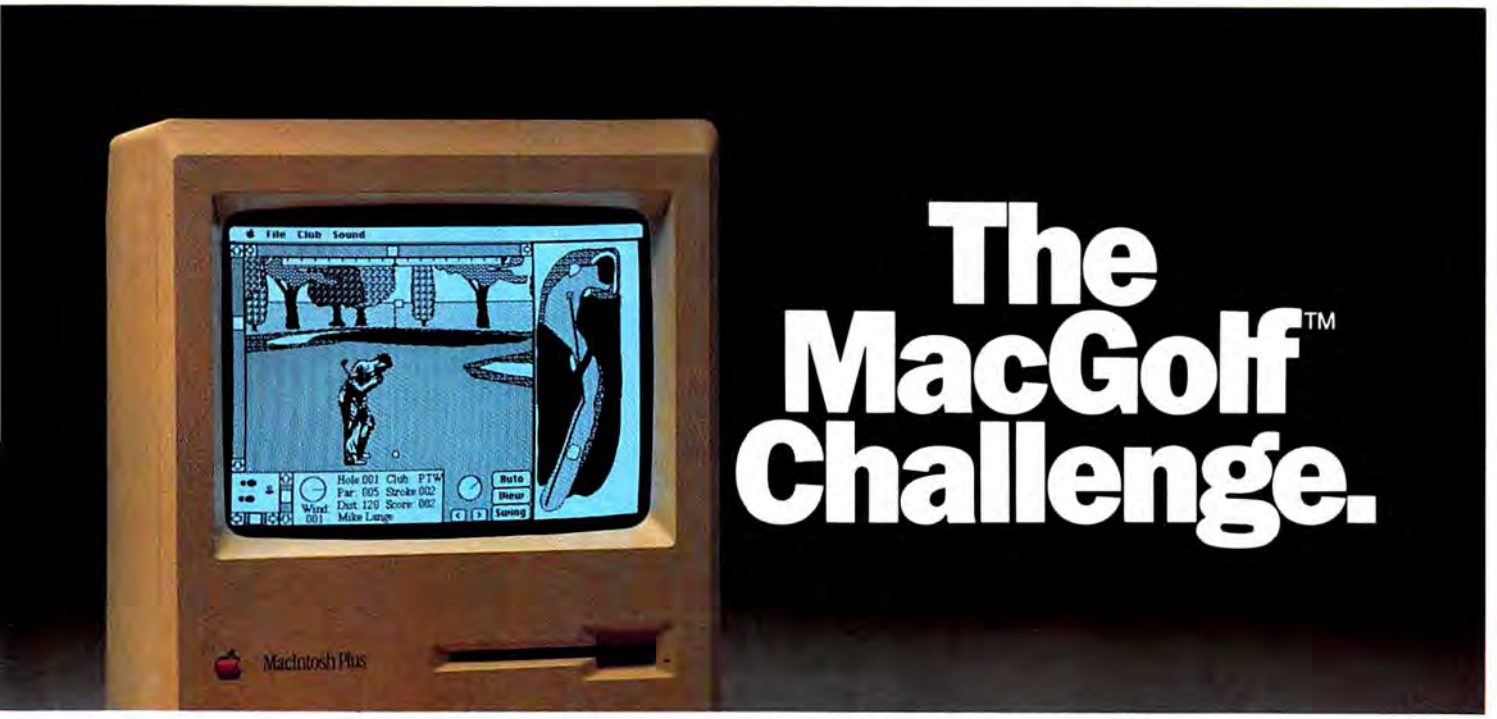


2.

AppleWorks to MacWrite

Q. I have been using an Apple IIe at work for more than 2 years and have a lot of documents on *AppleWorks* that I want to transfer over to my Mac. What software do I need, what cables, what is the procedure?
BILL BAUMANN
CHICAGO, IL

A. *It's actually pretty simple to transfer* AppleWorks *text files (or any text files for that matter), between a IIe and a Macintosh. You'll need a communication or terminal program for each machine. You could use* Access II *on the IIe and* MacTerminal *on your Macintosh.*



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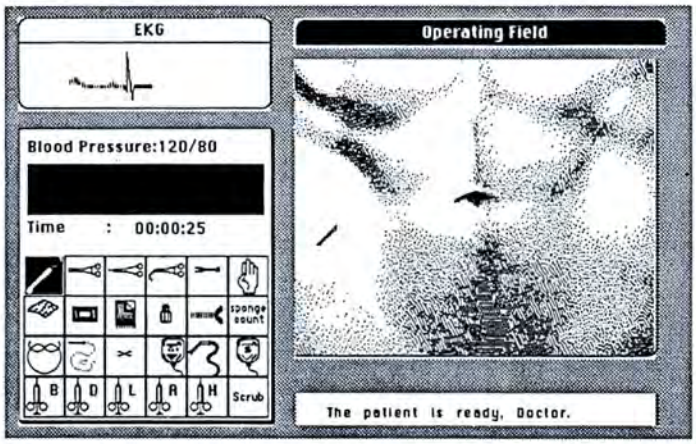
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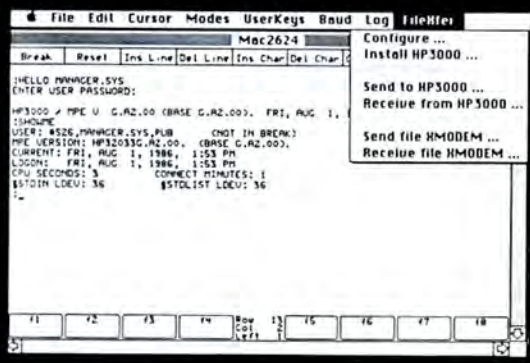
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OverVUE and Switcher

Q. I am using *Switcher* 4.0 with my Mac and HD-20 hard drive. I use *OverVUE* 2.0a along with *Word*. I'd like to be able to use them together with *Switcher*. Yet when I do, *OverVUE* gets stuck in an Edit mode as soon as I switch. Are these programs compatible with *Switcher*?

JOEL KRIESBERG
SPENCERTOWN, NY

A. OverVUE *doesn't work with* Switcher. *Apple knows it and so does ProVUE.*



MacWrite and QuickWord

Q. Your column is one of the many reasons I buy *MacUser*, and you have answered many questions I might have asked myself. However, I now have a question I haven't seen in your column and I have also encountered what I think might be a bug.

The question is: Why was *MacWrite* designed without a horizontal scroll bar?

The possible bug is found when using EnterSet's *QuickWord* 1.0 with *MacWrite*. When a *QuickWord* table is loaded in a document and the Keycaps desk accessory is open, touching any of the keys either on the screen or the keyboard resets the Macintosh!!

RON THACHUK
WINNIPEG, MANITOBA

A. *While there may have been some valid design considerations for not putting in horizontal scroll bars in* MacWrite *(you're really taxing my memory), I think it was simply a matter of resources and time.* Write *and* Paint *were our premiere software products, we wanted them to ship with the machine, and some desirable features just didn't make it in time for our 1984 ship date.*

Your QuickWord *problem, though, isn't due to* MacWrite. *Version 1.0 of* QuickWord *will reset the Macintosh if you (1) start-up* QuickWord, *(2) launch another DA which installs a menu (like Keycaps) and (3) hit any key.* QuickWord *version 1.3 fixes this bug and the good folks at EnterSet will provide free upgrades to registered 1.0 owners.*

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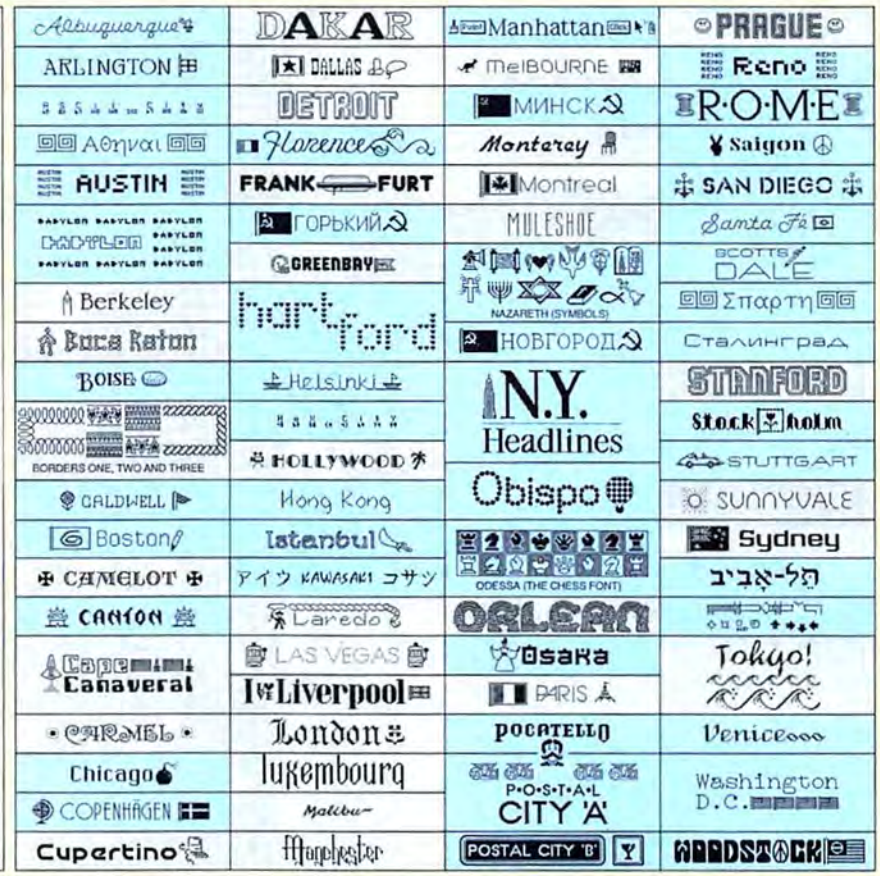
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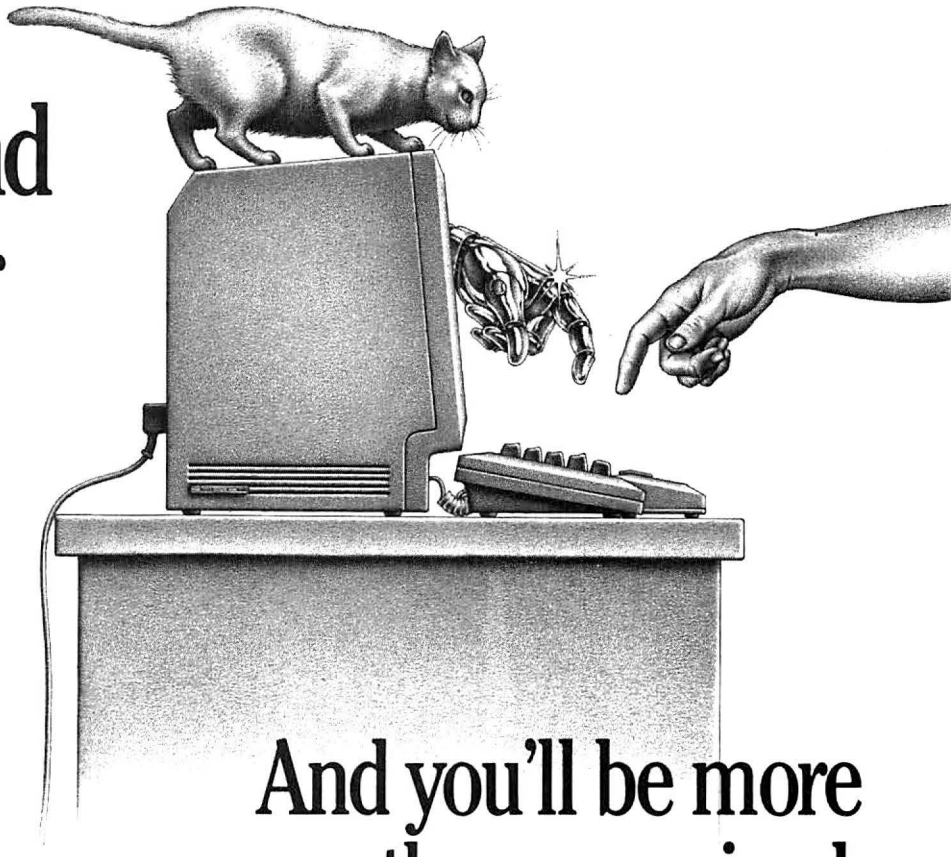
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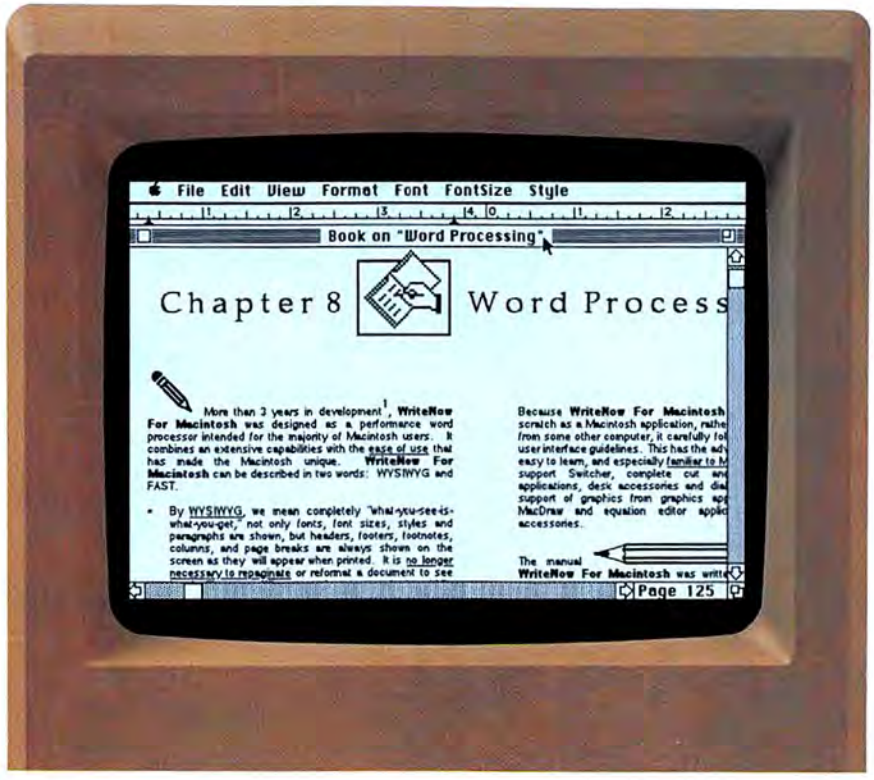
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Ted Benhari is Public Information Officer at Dominican Hospital in Santa Cruz, CA. He is very much into Desktop Publishing. He produces numerous publications for the hospital, including "The Dominigram," a magazine for the general public, "The Scanner," a newsletter for employees, and a catalog promoting various classes at the hospital's Education Center. Ted likes having the ability to digitize three-dimensional objects. **He can go from live action to his newsletter in seconds.** MacVision™ saves him time and money and gives him tremendous creative flexibility in his publishing efforts. If you need to image three-dimensional objects (buildings, displays, people, products, etc. as well as flat art) you will need MacVision.™ It's that simple. And **each MacVision™ package contains valuable coupons** for special discounts on color and black-and-white cameras so you can go from live action to print in seconds. **Save $366 on a Panasonic Camcorder and $85 on a black and white camera.** MacVision™ is available at leading computer dealers everywhere.

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DOMINICAN HOSPITAL EMPLOYEE NEWSLETTER

VOLUME 1, NUMBER 7 AUGUST, 1986

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Koala

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MINIFINDERS



Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the* MacUser *editorial staff. Each has been rated from 1 to 5 mice. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). CP? indicates that we don't know. If a product has been reviewed or QuickClicked in* MacUser*, the date of the review is shown. Next time you have to find products you can count on, count on* MacUser*!

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INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features ¢¢¢¢ versatile charting and database capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. $195. Paladin, 2895 Zanker Rd., San Jose, CA 95134. CP (Jan 86)

Ensemble lets users create a database of words, pictures, and/or ¢¢¢ numbers; graph data; generate custom forms and link files for applications such as mail merge. Can perform calculations and math functions on data. Capacity limited by RAM and disk size. $299.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

Excel is THE power spreadsheet. Of the Mac, of the world. Has ¢¢¢¢¢ 256-column by 16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. CP (Prem)

Jazz provides well integrated modules for word processing, graphs, ¢¢¢¢ worksheets, databases and communications. HotView, is best feature. Requires 512K+ and external drive. Version 1A requires 800K drive. $595. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Quartet is an integrated program that works on a 128K Mac, built ¢¢¢¢ around a powerful spreadsheet with a full range of functions. It can also be used as a database and provides good quality charts from spreadsheet data. Documentation is adequate, but not too well organized. $199. Haba Systems, 6711 Valgaen Ave., Van Nuys, CA 91406. CP

BUSINESS ACCOUNTING

BPI General Accounting is an easy to use system. Six journals, ¢¢¢¢ AR, AP, Payroll and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed records, wide range of reports. *Switcher* and HFS compatible. $425. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug 86)

CheckMark is a Ledger with five preset journals: Cash Disburse- ¢¢¢¢ ments, Receipts, General, Sales, and Purchases. Menus and data entry are very straightforward. Flexible summary reports are built in, but customer and vendor information is very minimal. $295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP

Gallery Finance is a one-write system with General Ledger, Cash ¢¢¢¢ Disbursements, Payables and Receivables in a single package. Data entered in a journal is automatically posted to appropriate records. Excellent manual includes tutorial on basic accounting principles. Requires 512K+, printer and external drive. $795. Micromax Systems, 6868 Nancy Ridge Dr., San Diego, CA 92121. CP (Dec 85)

Hardisk is a complex integrated hard disk system that does not ¢¢¢¢ use Mac interface. Manual is detailed but complicated, with a few pages that make it Mac-specific. Requires hard disk and printer. $695 per module. Great Plains, Box 9739, Fargo, ND 58109. CP? (Dec 85)

Insight is a high-powered accounting program for the small to ¢¢¢¢ medium size business. At present, two modules are available: Accounts Receivable and General Ledger; others are in the works. Requires 512K and hard disk. $595. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 86)

MacOneWrite Cash Disbursements is a simple, one-write check ¢¢¢ writing system. Limited functionality, but does allow some detailed information. Menus clear and easy to follow, but check printing can be confusing. Other modules planned. 512K+ and printer required. $245. Sierra, PO Box 485, Coarsegold, CA 93614. CP (Dec 85)

Rags to Riches integrated accounting modules (General Ledger ¢¢¢¢¢ and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. No detailed or flexible reporting. Very easy to use, but it can be confusing with several windows on screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. CP (Dec 85)

Strictly Business General Ledger features clear, well-outlined ¢¢¢¢ set-up procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each; and customized reports. Program print spools. Requires 512K+, printer and external drive. $395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec 85)

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a ¢¢¢ good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. $149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP

Electric Checkbook keeps a running account of checkbook ¢¢¢¢ transactions, balances checkbook to bank statements, tracks bills, and prints out checks. Provides detailed financial statements, calculates net worth, lists expenses by category and tracks personal cash flow. $79.95. State of the Art, 3191-C Airport Loop, Costa Mesa, CA 92626. CP

Financial Cookbook provides nearly 3 dozen "recipes" to help ¢¢¢¢ users figure out financial formulas (i.e., mortgage costs at different percentage rates) by inputting pertinent data. Very user-friendly. $44.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP



Financial Utilities Pack is a set of applications that allow users
★★★ to figure annuities, compound and simple interest, depreciation and amortization. Simple and well documented. $69. Cognitive Software, PO Box 26948, Austin, TX 78755. NCP

Forecast is a tax estimating and what-if program designed to work
★★★ with and use *Dollars & Sense* files. Straightforward, easy to use program. $69.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP

Market Pro is a comprehensive portfolio management program for
★★★★ the generation of fundamental data as well as technical charts and graphs. Requires 512K+, external drive and Hayes-compatible modem. $395. Pro Plus Software, 2830 E. Brown Rd., Mesa, AZ 85203. NCP (Nov 86)

Profit Stalker II is a program for the generation of charts in order
★★★★★ to organize data on stocks, mutual funds and commodities. Data is downloaded to the program or manually entered. Free upgrades and excellent support. Requires 512K+ and a Hayes-compatible modem. $250. ButtonDown Software, PO Box 19493, San Diego, CA 92119. NCP (Aug 86)

DATABASES

Business Filevision is a masterpiece of Macintosh programming,
★★★★ the only true graphic database on any micro. Much more powerful than the original, accepts *MacPaint* graphics. $395. Telos Software, 3420 Ocean Park Blvd, Santa Monica, CA 90405. CP (Feb 86)

Factfinder is a free-form information organizer (medium-duty
★★★★ database). Users enter data on to factsheets in any manner desired and select keywords. Searches are by name or keyword. $149.95. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Feb 86)

File is a flexible data manager. Creates files for a variety of data,
★★★★ including simple graphics. Files are created in simple row/column format, but reports and forms are easily customized by moving field names around on a blank form. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98052. CP

FileMaker is a nonrelational database that combines lots of power
★★★★★ with ease of use. Calculation fields make the creation of invoices and similar documents a snap. Reports can include graphics and multiple data layouts are easy to construct. $195. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP

FileMaker Plus retains features of *FileMaker* and reads *FileMaker*
★★★★★ data, also displays up to 8 files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Mac Plus compatible. $295. Requires 512K+. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Nov 86)

Filevision is a simple database that can change the way you think
★★★ about data and data organization. Records are based around user created graphics screens. Screens and records can be linked in complex ways. $195. Telos Software, 3420 Ocean Park Blvd., Santa Monica, CA 90405. CP

Helix is a relational database that makes extensive use of icons.
★★★★ Setup is easy due to adherance to the Mac interface. The manual is clear, thorough and well-indexed. Complicated for simple database applications, excellent where a relational power is needed. Requires 512K+ and external drive. $395. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Mar 86)

MacBase is a forms-oriented relational database. Unfortunately,
★★★ precise forms are hard to create. Allows calculated fields and has quick and powerful search capabilities. Best when much data is to be looked up, but not frequently entered. Requires 512K+. $195. Eqtron Corp., 330 Bay St., Toronto, Ont. M5H 2S8, Canada. NCP (Jul 86)

MegaFiler is a simple file manager. Its limited capabilities have
★★ been far surpassed by cheaper and easier to use programs. Valuable only in conjunction with *MegaForm*. $195. Megahaus, 5703 Oberlin Dr., San Diego, CA 92121. CP

Omnis 3 is a power database, featuring concurrent multiple file
★★★★ management. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments including user-defined menus, commands and dialogs. $495. Blyth, 2655 Campus Dr., San Mateo, CA 94403. CP (Mar 86)

OverVUE is a power-packed relational database that has extensive
★★★★★ sorting, summarizing and report generation capacity. Has macros and a charting function. Good manual. It can exchange files with a very wide variety of other programs (including IBM software). $295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (Nov 85)

Professional Bibliographic System is a database designed for
★★★ storing and retrieving bibliographies. Predesigned forms for 20 types of entries. Citations automatically formatted with correct punctuation for printing. $295. Personal Bibliographic Software, PO Box 4250, Ann Arbor, MI 48106. CP (Feb 86)

Reflex For The Mac is a flexible relational database. Excellent
★★★★★ report generator gives full control over appearance, style of output. Requires 512K+, second drive or hard disk, highly recommended. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Nov 86)

NUMBER CRUNCHING

ClickOn Worksheet is a 50-row by 20-column spreadsheet that
★★★ loads onto any system disk as a desk accessory. Though small in size, it has remarkable capabilities for a desk accessory. Changes in the worksheet automatically reflect in charts. $79.95. T/Maker Company, 2115 Landings Dr., Mountain View, CA 94043. NCP

DesignScope is a construction kit for digital and analog circuits.
★★★★ Up to 254 components can be utilized in a single circuit, and the equivalent of a dual trace oscilliscope plots output in real-time. Good for testing basic (and not-so-basic) circuitry without touching a breadboard. $249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

MacCalc is a fast, competent, full-featured spreadsheet with
★★★★ impressive built-in functions, font control, on-line help, ability to expand columns and rows and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. Cell names, printing power make *MacCalc* a very flexible pure spreadsheet. $99.95. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

Multiplan, the first Mac product from someone other than Apple is
★★★★ beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. $199.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. CP (Mar 86)

ProAnalysis is a powerful real estate investment analysis pro-
★★★★★ gram. This program uses the Mac interface as well as any program yet published. Analytic power is combined with report generating so good you have to see it. Requires 512K+. $295. Technalysis Services, 14555 DeBell Rd., Los Altos Hills, CA 94022. CP

StatView is a high-powered statistical calculation package. Easily
★★★★ and efficiently handles all the common statistical techniques and many uncommon tests. Has a user-definable area as well. Easy to use and well documented. $199.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 86)

StatWorks is a general-purpose statistics package that is both
★★★★ powerful and easy to use. Handles all standard tests and procedures. Single variable and multivariate statistics are supported. $125. Cricket Software, 3508 Market St., Philadelphia, PA 19104. NCP (May 86)

GRAPHICS & DESIGN

Animation Toolkit I lets users prepare "film clips" of moving
★★ objects which play back at varying speeds, like old-fashioned flip books. Each film clip plays repetitiously as it is

MINIFINDERS



being constructed. A limited animation tool, but a lot of fun. $49.95. Ann Arbor Softworks, 308½ S. State St., Ann Arbor, MI 48104. CP

Art Grabber with Body Shop is a desk accessory that lets users ♦♦♦♦ browse *MacPaint* documents, selecting and copying as they choose. Selections can be larger than screen size. Also included are *MacPaint* documents and templates to allow the creation of people in your art. $49.95. Hayden, 600 Suffolk St., Lowell, MA 01853. NCP

Chart can easily create area, bar, column, line, pie, scatter and ♦♦♦♦ combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. $125. Microsoft, 16011 NE 36th WAY, Redmond, WA 98052-6399. CP

ClickArt Special Effects is a *MacPaint* enhancement desk ♦♦♦♦ accessory. Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. $49.95. T/Maker, 2115 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint facilitates color printing on the standard ImageWriter. ♦♦♦ *MacPaint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration and colored ribbon switching. Good results require lots of hard work, but it's cheaper than an ImageWriter II. $49.95. Esoft Enterprises, PO Box 179, Owasso, OK 74055. NCP (Mar 86)

ComicWorks is a graphics wonder. Manipulate bit mapped graph- ♦♦♦♦ ics as independent objects, with up to 64 layers of matting. An airbrush, multiple page capacity, full-screen drawing, and two disks of gorgeous artwork round out this package. Needs better LaserWriter support. $79.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Nov 86)

Cricket Graph easily generates 12 graph types. Multiple windows ♦♦♦♦♦ can be displayed. *Graph* prints in up to 8 colors with up to 16 patterns. Self-generating macro formatting. *Switcher*, HFS, LaserWriter and plotter compatible. $195. Cricket Software, 3508 Market St., Philadelphia, PA 19104. NCP (Jun 86)

DaVinci Building Blocks features predrawn blocks of brown- ♦♦♦♦♦ stone, garden, and skyscraper portions that can be cut and pasted together to form landscape and architectural drawings. Fun for even non-pro's. $79.95. Hayden, 600 Suffolk St., Lowell, MA 01853. NCP

DrawArt is the first *MacDraw* clip-art disk. Unfortunately, the ♦♦ assortment of graphics is too ragtag and the quality of images ranges from great to terrible. No image index. $49.95. Desktop Graphics, 400 Country Dr., Dover, DE 19901. NCP (Oct 86)

Easy3D is a three-dimensional, solid modeling masterpiece. Four ♦♦♦♦ variable light sources, powerful sculpting tools and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. $149.95. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May 86)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different ♦♦♦♦ items are included. All install easily in user Systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. $49.95. Casady, PO Box 223779, Carmel, CA 93922. NCP

Fontastic is the best font editor now available for the Mac. ♦♦♦♦♦ Features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles (italic, bold, etc.). $49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

Fontographer is a complex, but excellent laser font creator. The ♦♦♦♦♦ fonts created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. $395. Altsys, PO Box 865410, Plano, TX 75086. CP

FullPaint is an expanded version of *MacPaint*. Features include ♦♦♦♦♦ full-screen drawing, multiple documents open simultaneously, brush editing, movable tool palettes, special text effects and much more. It fills the gaps left by *MacPaint*. $99.95. Ann Arbor Softworks, 308½ State St., Ann Arbor, MI 48104. NCP (Jun 86)

GrayPaint is a graphics system for creating gray-level pictures. At ♦♦♦ the time of review, program was unfinished with some non-working functions. What did work was impressive. $59.95. MacNifty Central, 6860 Shingle Creek Pkwy., Minneapolis, MN 55430. NCP (Dec 86)

GridMaker is a tool for artists who use perspective. The program ♦♦♦ automatically generates a series of three-dimensional plane sets that can be pasted into *MacDraw*. Sizes and viewing vantage point are easily modified. $49. FolkStone Design, Inc., PO Box 86982, North Vancouver, BC V7L 4P6, Canada. NCP (Nov 86)

Home Design is a home planning tool that includes three disks ♦♦♦♦ full of *MacPaint* files of household items needed to design a home. *Art Grabber Installer* is included for easy manuvering of items. The professional home designer, as well as the amatuer will feel at ease using this program. $79.95. Hayden, 600 Suffolk St., Lowell, MA 01854. NCP (Jun 86)

Human Forms allows users to create perfectly proportioned ♦♦♦ humans in any posture or position. Contains over 1000 separate body parts. Tiny X marks make limb, head and detail placement perfect. Requires *MacPaint*. $59.95. Bert Monroy, 205 Luquer St., Brooklyn, NY 11231. NCP

Icon Switcher changes icons for applications and the documents ♦♦♦♦ they generate, permitting you to customize icons for personal work. New icons can be built pixel by pixel in the program or created in *MacPaint* and pasted in. $19.95. PBI Software, 1111 Triton Dr., Foster City, CA 94404. NCP

LaserWorks is a high-resolution font and graphics editor, produc- ♦♦♦♦♦ ing LaserWriter-compatible end products. Its numerous well-designed features make it suitable for users of all levels, from beginners to pros. Requires 512K+ and external drive or hard disk. $299. EDO Communications, 63 Arnold Wayh, W. Hartford, CT 06119. CP (Sep 86)

The Mac Art Dept. is a collection of over 150 graphic images ♦♦♦♦ ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. $39.95. Simon & Schuster, Computer Software Div., 1230 Ave. of the Americas, New York, NY 10020. NCP (Mar 86)

Mac-a-Mug is an Identikit type program for creating faces from ♦♦♦ facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 512K+ Mac required. $59.95. Shaherazam, PO Box 27731, Milwaukee, WI 53226. CP (May 86)

MacDraft is an object-oriented graphics program. It sports ad- ♦♦♦ vanced features such as variable scaling, single degree rotation, complex arcs and a FatBits-like magnification mode. Best used to complement *MacDraw*, not replace it. $239. Innovative Data Design, 1975 Willow Pass Rd., Concord, CA 94520. CP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can ♦♦♦♦♦ be used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

MacModel is an economical 3D package with shading. Somewhat ♦♦♦ sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcóme addition. Frequent updates and low price make this a reasonably good buy. $40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

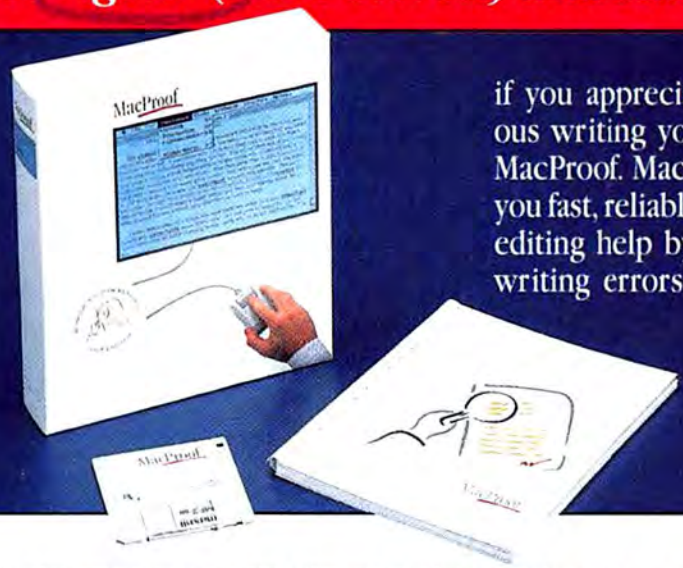
MacPaint is the graphics program that started a whole new genre. ♦♦♦♦ Still the best freehand graphics tool. Version 1.5 supports 512K+ Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. A work of art for artists. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

MacPublisher is a tool for creating newsletters. Allows multiple ♦♦♦ page issues. Layout is fairly easy but hard to do precisely. Runs slowly on a 128K Mac; a 512K should be considered a requirement. Printer support, including LaserWriter, is good. $99.95. Boston Software Publishers, 19 Ledge Hill Rd., Boston, MA 02132. CP

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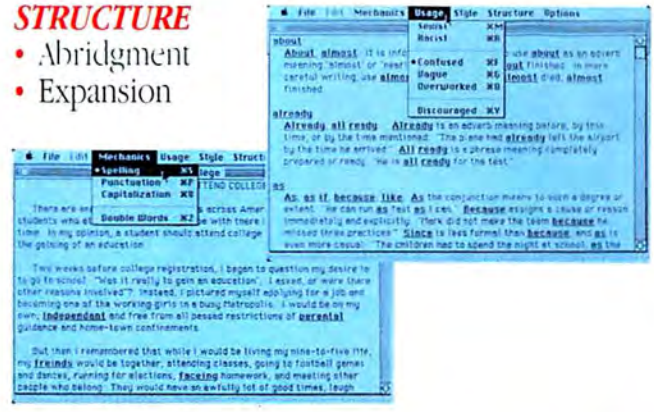
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MacPublisher II is the souped-up version of *MacPublisher*. Allows
¢¢¢¢ *MacWrite* and *Word* files to be imported and edited; allows up to 96 pages; supports kerning, borders, cropping, and it runs on 128K Macs. $195. Boston Software Publishers, 1260 Boylston St., Boston, MA 02215. CP (Sep 86)

Mac3D is a very Macish 3D drawing package. Easy to use, many
¢¢¢ primitive shapes, good LaserWriter support, and lots of 3D goodies. Not a fully professional CAD package, though, and no shading. $195. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP

Magic Slate is a graphics and design program with built-in special
¢¢¢ effects and custom features. Fun but sometimes difficult to use. Great for pattern design, block and geometric graphics and watercolor-style "washes." Requires 512K+. $99. Devionics, PO Box 2126, Covina, CA 91722. CP (Feb 86)

M.U.D (MacroMind Utility Disk) is a disk of various utilities for
¢¢¢¢¢ *MusicWorks* and *VideoWorks* owners. It also contains *CheapPaint* and *Art Grabber+*, two graphics desk accessories that are musts for graphics enthusiasts. Hayden, 600 Suffolk St., Lowell, MA 01854. NCP (Feb 86)

PageMaker is an advanced layout and makeup program. Can
¢¢¢¢ easily create multiple page documents. Output is optimized for LaserWriter. Good documentation. $495. Aldus, 411 First Avenue South, Seattle, WA 98104. CP (Jun 86)

Phoenix 3D is an economical 3D drawing package, with features
¢¢¢¢ that belong in a more expensive program. Multiple light sources, fine object placement and orientation control, and a good selection of shapes. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)

PictureBase is a program and accompanying desk accessory for
¢¢¢¢¢ organizing *MacPaint* and *MacDraw* files. Graphics are organized into libraries, and can be searched for by keywords. $69.95. Symmetry Corporation, 761 E. University, Mesa, AZ 85203. NCP (Jun 86)

PosterMaker can enlarge *MacPaint* drawings by up to 3200
¢¢¢ percent. Full-screen cut and copy are supported, so any portion of a *Paint* document can be selected and scaled. Borders can be added automatically. Includes some nice digitized graphics files. $39.95. Strider Software, Beecher Lake Rd., Pembine, WI 54156. NCP (Jul 86)

The Print Shop makes it easy to create greeting cards, banners,
¢¢¢¢ letterhead and signs in minutes. Offers full access to fonts, styles, graphics. Can pull images from *MacPaint* files or off the Clipboard. Fun and easy to use. $79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Dec 86)

ReadySetGo is a page makeup program for 512K+ Macs. Users
¢¢¢¢ build up pages from blocks of text, graphics and rules. Text and art may be pasted in from another source or created within the program. Good LaserWriter support. $195. Manhattan Graphics, 163 Varick St., New York, NY 10013. NCP (Apr 86)

Slide Show Magician 1.3 is useful for creating full screen audio-
¢¢¢ visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. $59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

Storyboarder produces working animated storyboards for use in
¢¢¢¢ film and video production. Imports graphics from *MacPaint;* allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. Storyboards can be printed in several formats. $495. American Intelliware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

VideoWorks is a full-featured animation package. Professional
¢¢¢¢¢ quality animations are easily accomplished using the tools provided. Features frame-by-frame and real-time modes. Comes with an art disk of predrawn images and *Art Grabber*. $99.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (Nov 85)

World-Class Fonts! comes in two volumes of three disks each.
¢¢¢¢¢ Includes all the *Mac the Knife* fonts and a lot more, including 2 useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: $39; both volumes: $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec 86)

COMMUNICATIONS

HomePak is a package consisting of *HomeTerm*, an excellent
¢¢ simple telecommunications program with strong macro features; *HomeFind*, an electronic filer as bad as *HomeTerm* is good; and Apple's *Edit*, a simple, non-HFS-compatible text-file editor. $49.95. Batteries Included, 30 Mural St., Richmond Hill, Ontario L4B 1B5, Canada. NCP (Aug 86)

InTalk comes with its own communications command language
¢¢¢¢¢ able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample set up documents and command language files provided. $145. Palantir, 12777 Jones Rd., Houston, TX 77070. CP (Prem)

MacTerminal provides basic telecommunications and terminal
¢¢ emulation for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation — it is superb at those. $99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

Microphone is a high-powered terminal program that's easy
¢¢¢¢ enough for novices. Very powerful command language allows full automation of communications, if desired. $74.95. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jun 86)

Red Ryder is a full-featured telecommunications program that
¢¢¢¢¢ supports MacBinary, Xmodem and Kermit. Remote service procedures, auto procedure writer and keyboard macros allow automation of many operations. It is shareware and a real bargain. $40. The FreeSoft Corp., 10828 Lacklink, St. Louis, MO 63114. NCP (Jun 86)

Smartcom II balances power and ease of use. Capable of
¢¢¢¢¢ unattended operation and has a very powerful command language. Supports MacBinary, Xmodem, and Hayes Verification protocols. The large screen buffer can easily be archived. $149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Prem)

Telescape is the power telecommunicator's terminal program. Can
¢¢¢ be configured to emulate any terminal. The documentation does not adequately explain the many features. $125. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Jun 86)

VersaTerm features include DEC VT100 and VT52, Tektronix 4014
¢¢¢¢¢ graphics terminal and Data General DG200 emulation. Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. $99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

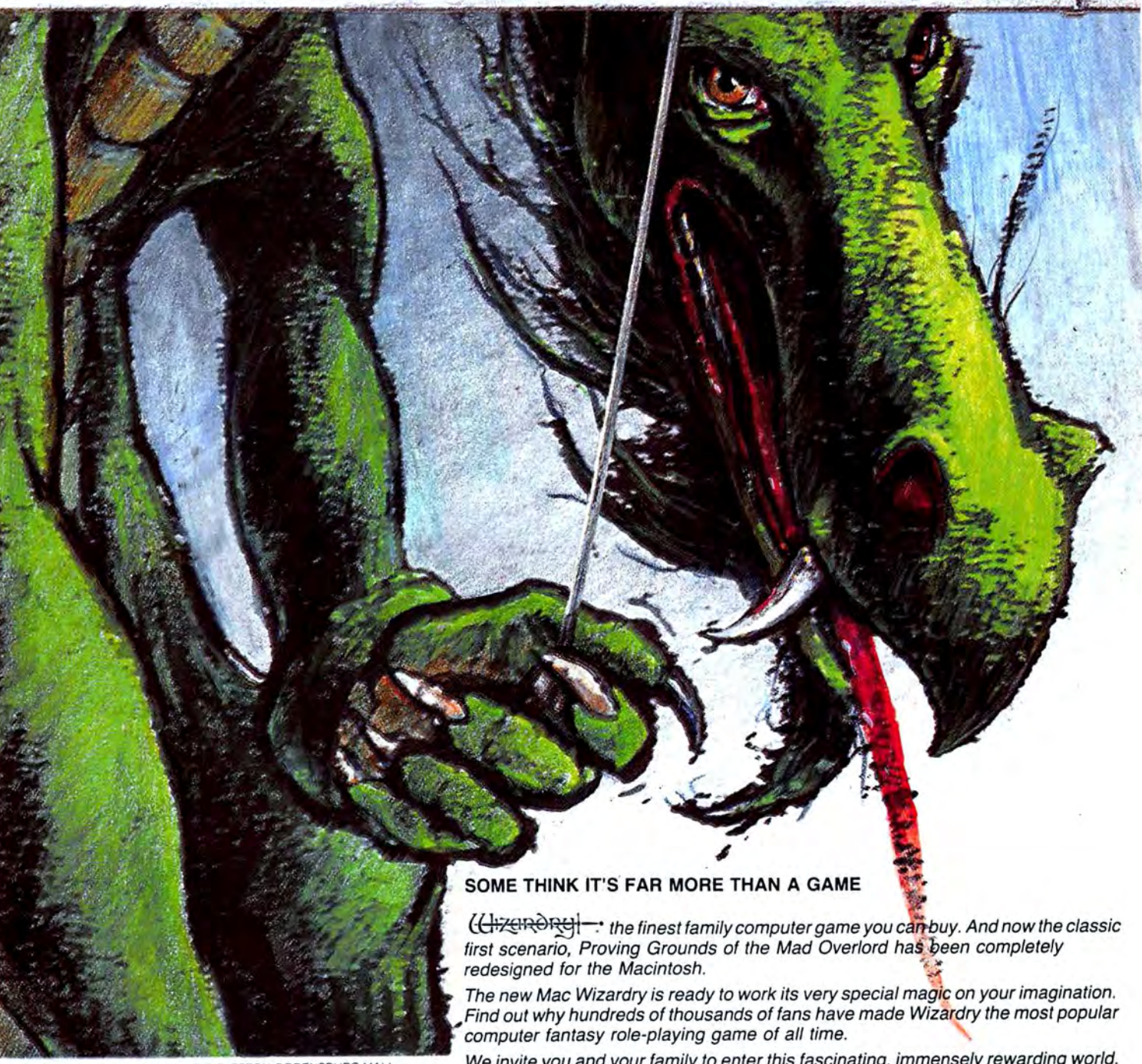
WORD PROCESSORS

Document Compare allows users to compare any two *MacWrite*
¢¢¢ 4.5, ASCII or MDS documents. Differences in spelling, punctuation, formatting and wording are detected. Documents can be printed out with differences highlighted. $99. The Model Office Company, 49 Wellington Street East, Toronto, Canada M5E 1C9. CP (May 86)

EgWord is a *MacWrite* lookalike that allows full Japanese kanji
¢¢¢ word processing on the Mac. Does a superlative job of making Japanese text-entry as easy as possible. Great for students of Japanese, may find a place in international business as well. $300. Counterpoint Systems, PO Box 1685, Cambridge, MA 02138. CP (Apr 86)

Just Text is a professional level word processor and page makeup
¢¢¢¢¢ program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. $195. Knowledge Engineering, GPO Box 2139, New York, NY 10116. NCP (Dec 85)

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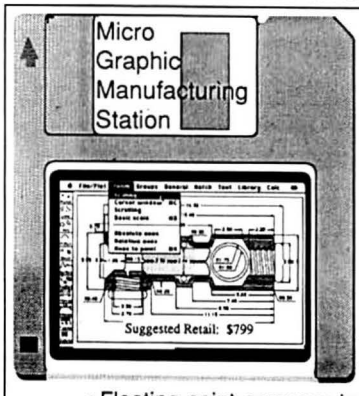
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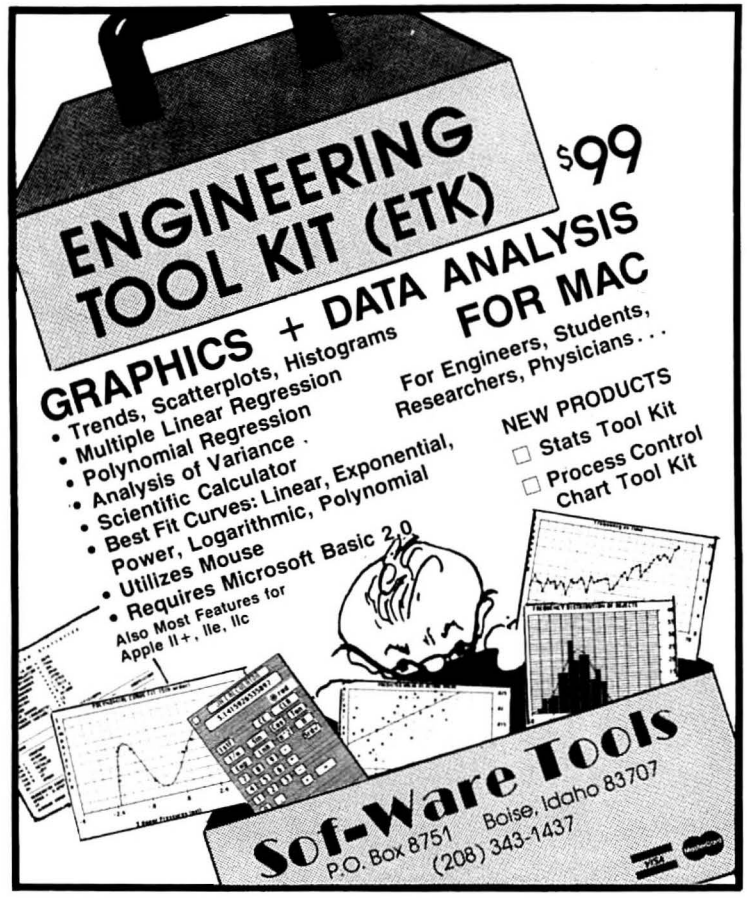
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- **" THE PERIPHERAL LAND DISK SATIFIES BOTH THE PRICE-CONSCIOUS AND THE SECURITY -CONSCIOUS USER'**

 Macworld **Sept. issue.**
- **BACK-UP PROGRAM TO BACKUP THE HARD DISK TO FLOPPIES BY FILE, FOLDER, VOLUME, OR INCREMENTAL FILES.**
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MINIFINDERS

LaserFonts are new fonts for the LaserWriter. Users download ♦♦♦♦ them to their machines. Very high quality and very simple to use. *Willamette* looks like Avant Garde. *MicroFonts* provides tiny, expanded and condensed versions of the LaserWriter's own fonts. $29.95 each. Century Software, 2306 Cotner Ave., Los Angeles, CA 90064. NCP

Liberty Spell Checker is a fast, effective interactive checker. The ♦♦♦♦ dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. $59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Oct 86)

MacIndexer is a good writer's utility that takes much of the ♦♦♦♦ mechanical work and time out of preparing an index. Works with *MacWrite* and *Word*. Can generate word frequency counts. $49.95. Boston Software Publishers, 1260 Boylston St., Boston, MA 02215. CP (Jul 86)

MacWrite is the basic Mac word processor. While it doesn't have ♦♦♦♦ every bell and whistle, it is more than adequate for most users. Features include global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

MegaForms is a well designed forms generator and processor. ♦♦♦ Forms design is easy. Can use data from *MegaFiler*. The form filling and print functions are slow, possibly too much so for large scale use. $495. Megahaus, 5703 Oberlin Dr., San Diego, CA 92121. CP (Feb 86)

QuickWord is a word processing accessory that adds sophisticat- ♦♦♦♦ ed glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 410 Townsend St., San Francisco, CA 94107. NCP

Spellswell is an effective and powerful standalone spelling ♦♦♦♦ checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. $59.95. Greene, Johnson, 15 Via Chualar, Monterey, CA 93940. NCP (Oct 86)

Word is a power word processor for the Mac. It has just about every ♦♦♦♦ feature your heart could desire. Supports keyboard commands as well as the mouse. Does mail merge and multicolumn text. Integrates with the rest of the Microsoft line. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. CP (May 86)

Word Handler is a word processor with elements of *MacWrite* and ♦♦♦♦ *Word*. Can delete, rename, etc., without quitting. Has case change, flexible printing options and glossary. Slow. $79.95. Advanced Logic Systems, 1283 Reamwood Ave., Sunnyvale, CA 94089. NCP (Oct 86)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has ♦♦♦♦♦ practically all the power of a standalone program, and then some. Can save files as *Acta* outlines, *MacWrite* or text files. A must-have for those who do outlining. $59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

Calliope is a new type of outlining program. Chunks of information ♦♦♦ are manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. $59.95. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

DecisionMap organizes data to facilitate decision making. Unique ♦♦♦ weighting abilities make this a powerful tool. The decision analysis process is long and some times complex, but never difficult. $145. SoftStyle, 7192 Kalanianole Hwy., Honolulu, HI 96825. CP

Infocom introduces four new gam

Infocom,™ the crazy people who brought you "Zork"® and "The Hitchhiker's Guide to the Galaxy,"™ has a habit of coming up with games that add a new dimension to interactive fiction. And the best keeps getting better. Case in point: "Leather Goddesses of Phobos."™ It has a scratch n' sniff card and a 3-d comic book to excite all your senses. Once your interest is piqued, you'll embark on a rowdy romp through the solar system. This hilarious spoof of 1930's pulp science fiction has 3 "naughtiness levels," for the prude to the lewd. "Leather Goddesses" is sure to amuse members of either sex.

One's really warped.

Then there's "Trinity."™ It answers the question of whether a game can be both light-hearted and profound. You journey through a time warp into a mischievous fantasy world where all atomic explosions are mysteriously connected. "Trinity" takes you back to the dawn of the atomic age and puts the course of history in your hands.

One's a real circus.

It has been said that the circus is the only really mysterious thing left in civilization. One thing's for sure, there is plenty of mystery in "Ballyhoo."™ While trying to locate the circus owner's kidnapped daughter, you are somersaulted into a three-ring world of deception and crime. To solve the crime



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MINIFINDERS

MacProject allows a user to plan and track a project from beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar 86)

MacSpec is a specification writing tool, a cross between word and outline processors. Can automatically number and indent headings, and renumber everything when lines are moved. Text under headings is handled and formatted as though in a simple word processor. HFS-compatible. $199.95. LM Software, PO Box 93, Belmont, CA 94002. NCP (Oct 86)

MaxThink is an outline and idea processor that focuses on thinking skills. Helps you establish priorities, evaluate ideas, synthesize information. $89. MaxThink, 230 Crocker Ave., Piedmont, CA 94610. NCP (Oct 86)

Micro Planner is a heavy-duty project planner. Excellent, but slow, at the mechanics of project planning. Reports are its weakness. Speed is much improved when a hard disk is used. $395. MicroPlanning Software USA, 235 Montgomery St., San Francisco, CA 94104. CP (Mar 86)

Mindsight is a professional level decision support and business planning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. $195. Execucom Systems, PO Box 9758, Austin, TX 78766. CP

MORE is an incredibly powerful outline processor with gobs of great features: instant charts, math capabilities, multiple windows, font and style control, templates and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. $295. Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. NCP (Sep 86)

ods/Consultant is a program that lets users organize ideas and helps in thinking through and solving problems. Easy to use thanks to extensive use of icons and on-screen help. This program introduces some low-level AI (artificial intelligence) concepts. $200. Organization Development Software, 1011 E. Touhy Ave., Des Plaines, IL 60018. CP (Apr 86)

ThinkTank 512 is a very fast and intuitive organizational tool. Full keyboard control is possible. Can store and paste graphics into outlines. Slide show features allows high-quality presentations to be created. Good report formatting and printing capability. $195. Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. CP (Jan 86)

DESK MANAGERS

BatteryPak is a set of 9 handy desk accessories including scientific and RPN calculators, a background text file printer and a 250-page note pad with search and phone dialing capabilities. *Disk Tools* is the best DA currently available. $49.95. Batteries Included, 30 Mural St., Richmond Hill, Ontario, L4B 1B5, Canada. NCP (Dec 85)

Front Desk lets small businesses and offices easily keep track of personnel schedules, activities and payments. The program can keep track of up to 15 employees, functioning as a day-, week- and month-at-a-glance calendar. $149.95. Layered, 85 Merrimac St., Boston, MA 02114. CP (Dec 85)

MacOffix combines many of the simple and necessary office functions in one easy-to-use package. Features include simple word processing, forms design, form letter production, report generation and filing. Good design nearly makes the manual unnecessary. $79. Emerging Technology, 4760 Walnut St., Boulder, CO 80301. CP

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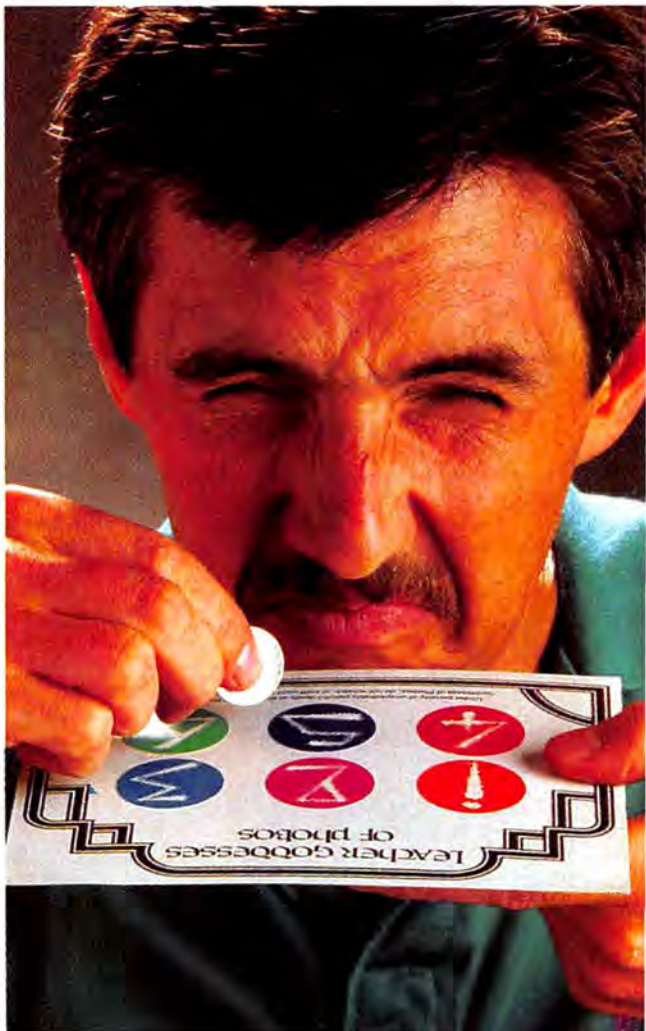
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MINIFINDERS



Mighty Mac is a personal data manager. Features include an on-screen calendar, a Directory, Reminder function (with audio and visual alarm), and an Event function. Very good search capabilities. $59.95. Advanced Logic Systems, 1195 E. Arques Ave., Sunnyvale, CA 94086. CP (Aug 86)

My Office lets you handle your files and papers in much the same way you did before you got a computer. Excellent use of graphic symbols makes this program the easiest to use of its type. $129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools that can be used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial and statistical calculators and a file encryptor. $49.95. EnterSet, 410 Townsend St., San Francisco, CA 94107. NCP (Dec 85)

Sidekick is a set of desk organization applications and accessories. Functions include phone dialer and logger, desk accessory terminal, calculator, clock, editor and more. When resource files are included modules take up a lot of disk space. $84.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 85)

Smart Alarms is the best reminder system for the Mac. Easy to use, versatile, and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. $49.95. Imagine Software, 2000 Center St., Berkeley, CA 94704. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs. Menu Key adds Command key sequences to programs, View allows looking at and moving data between up to 8 *MacWrite* documents, BackPrint, Shorthand, Blank, Encrypt, and Launch. $59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. (May 86)

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. *Paint Cutter* alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. $39.95. Silicon Beach, 11212 Dalby Pl., San Diego, CA 92126. NCP (Nov 85)

Copy II Mac does efficient sector and bit copies and in its latest version can back-up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools*, a multiuse utility that can recover many damaged files. $39.95. Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219. NCP (Apr 86)

Disk Ranger is a speedy cataloguing program that doubles as an efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. $49.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Mar 86)

Dubl-Click Calculator Construction Set lets users design personalized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr 86)

Fedit Plus is the file and disk editor for everyone, from newest Mac owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. HFS-compatible. $40. MacMaster Systems, 939 E. El Camino Real, #122, Sunnyvale, CA 94087. NCP (Sep 86)

FlashBack is a utility to backup HFS hard disks onto floppies. A unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. $59.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Nov 86)

Glue adds a print-to-disk capability to many programs. *ImageSaver* installs as printer driver, *Viewer* allows copying and printing of *Glue* files. Handy utility for desktop publishers. $49. Solutions, Box 989, Montpelier, VT 05602. NCP (Dec 86)

Hard Disk Util uses patch files to allow users to mount and run specified programs on their hard disks. The list of patches is constantly expanding. $89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk backup utilities. Backup by file/folder or last changes. Backup specifications can be saved as templates. Good graphic interface. Reliable program. $49.95. PCPC, 6204 Benjamin Road, Tampa, FL 33614. NCP (Dec 86)

HFS Locator Plus is *the* essential HFS desk accessory. It can search for a file by name or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. $34.95. PBI Software, 1111 Triton Dr., Foster City, CA 94404. NCP (Sep 86)

Mac Disk Catalog II is a utility that will quickly organize a moderate size disk library. Easy to use with powerful reporting and label-making features. $49.95. New Canaan MicroCode, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec 85)

MacLabeler lets users instantly index and print labels for all the disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. $49.95. Ideaform, PO Box 1540, Fairfield, IA 52556. CP (Prem)

MacLink lets users transfer data between Macs and PCs. Can do special format transfers such as *1-2-3* to *Multiplan* and *WordStar* to *MacWrite*. Contains both Mac and PC disks, interface cable is optional. Has Mac and MS-DOS disks. $125, $155 with 8-ft interface cable. DataViz, 16 Winfield St., Norwalk, CT 06855. NCP

MacNosy is a global disassembler. A very advanced user can use this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going IF you have the skill to guide it. The documentation is sparse. For pros only. $85. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

Mac + II lets you run Apple II software on the Mac. Emulation speed is only 35 to 45 percent of a real Apple II, so graphics especially suffer. Games also run slow. Runs AppleWorks (Apple II integrated software). Good for ex-Apple II owners who have large software collections. $149.95. Meacom, PO Box 272591, Houston, TX 77277. CP

MacQwerty is a set of three keyboard utility programs. *Reconfigure* allows users to assign any character to any key, *Standard* sets up a normal qwerty keyboard and *Dvorak* changes the key arrangement to the very efficient Dvorak layout. $35. Paragon Courseware, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Jul 86)

MacServe converts a Mac and a hard disk into a disk and print server. Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. $250. Requires 512+ or Mac XL. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacZap is a three-part disk and memory utility. It can be used to recover some damaged files and disks, compare disks, analyze disk structure and make back-up copies of most disks. $60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan 86)

myDiskLabeler is an excellent label making program. It can read directories, or use large or small icons, or anything else the user desires. Comes with 54 precut labels on pinfeed paper. HFS compatible. $44.95; with color printing ability (on the ImageWriter II), $54.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 86)

'Ncryptor is a simple, safe program that lets users password their files. The same program is used for encoding and decoding. This is the best product in its category. $39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

Packer is a simple utility that compresses files. It can be used to save disk space and also protect files. Typical space savings

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MINIFINDERS



range from 20 to 50% depending on the original file type and size. This is the best program of its type so far. $29. Bobbing Software, 67 Country Oaks Dr., Buda, TX 78610. NCP (Jun 86)

PC to MAC and BACK has both Mac and MS-DOS disks. This ⭐⭐⭐ program efficiently transfers text and other data between PCs and Macs. The documentation is excellent. Does special format transfers such as *WordStar* to *MacWrite*. Includes a cable for direct Mac to PC connections. $149.95. dilithium Press, 8285 SW Nimbus, Beaverton, OR 97005. NCP

Quick & Dirty Utilities, Volume One is a disk chock full of the ⭐⭐⭐⭐⭐ handiest programs you have ever bought. Included are a super disk cataloguer, a desk accessory mover and more. Several desk accessories including a menu bar clock and a terminal are on the disk. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This ⭐⭐⭐⭐⭐ program lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is near instantaneous. Requires 512K+. $19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

TMON is *the* debugger for the Mac. This isn't open to question. ⭐⭐⭐⭐⭐ *TMON* is simply the best. Comes with the latest version of Darin Adler's Extended User Area. $100. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

TurboDownload is a desk accessory designed specifically to ⭐⭐⭐⭐⭐ increase the speed of Xmodem data transfers from national databases to your Mac. Speed increases range upward from 50% to over 300% at 2400 baud. $39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

Twelve-C Financial Desk Accessory brings all the power and ⭐⭐⭐⭐ functionality of a Hewlett-Packard 12C programmable calculator to your desktop. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

II in a Mac is a graphically oriented Apple II emulator with unique ⭐⭐⭐ features, such as text and graphics copy from Apple screen to Mac Clipboard. 40 column screen is too small, 80 column better. Suffers speed problems associated with "virtual machine" emulation. $69. Micro-W Distributing, 1342B Route 23, Butler, NJ 07405. CP

TypeNow is a desk accessory that allows the Mac and ImageWriter ⭐⭐⭐⭐ to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. $39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Jan 86)

LANGUAGES

Aztec C is a C language that will appeal to users with a UNIX ⭐⭐⭐⭐ background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. $199 basic system, $299 development system, $499 commercial system. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86)

MacAsm is a software development system that allows programs ⭐⭐⭐ to be written in assembly language. Programmers can assemble, edit and test software, and an integrated resource compiler lets independent applications run from their own icons. $125. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

Mac C is a good, highly Mac-oriented implementation of this ⭐⭐⭐⭐ popular development language. Assembler and linker built-

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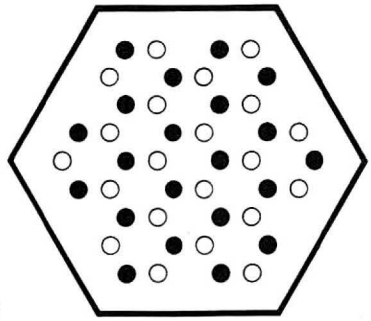
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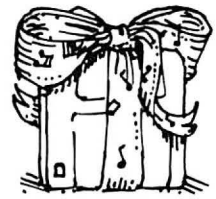


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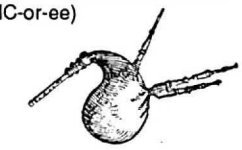
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in. $425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

MacExpress is a development environment or shell. Programmers ¢¢¢ use it to save time and effort when developing standalone applications for the Mac. Easy to use for those with a strong technical background. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86)

MacForth is an implementation of the popular Forth programming ¢¢¢¢ language. Level 1 is a simple, introductory version. Level 2 supports the Mac Toolbox fully. Level 3 extends the language to allow standalone applications. $149 (Level 1), $249 (Level 2), $499 (Level 3). Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local ¢¢¢¢ variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. $99.95. Requires 512K. Palo Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86)

Macintosh 68000 Development System is a fairly traditional ¢¢¢¢ assembly language package. The two-disk set provides an editor (*Edit*), an assembler, a linker, an executive and a resource compiler. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

Macintosh Pascal is Apple Computer's version of this very popular ¢¢¢ programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. The documents are mostly references, get a good tutorial textbook. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabili- ¢¢¢ ties. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. $125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. CP? (Jun 86)

Megamax C is an easy to use, full version of C. Has a compiler, ¢¢¢¢ linker, disassembler, editor and much more. Good for beginners. Excellent documentation. $299.95. Megamax, PO Box 851521, Richardson, TX 75085. NCP

Microsoft BASIC was the Mac's first programming language. This ¢¢¢¢ interpreter (it's not a compiler) now supports the Toolbox and the whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available to run. $150. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. NCP

Microsoft Logo, from Microsoft's MacLibrary, written by LCSI. An ¢¢¢¢ excellent implementation of Logo, taking full advantage of the Mac's user interface. $124.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. NCP

QUED (Quality Editor for Developers) is the ultimate source ¢¢¢¢ code editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. $65. Paragon Courseware, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML (MacLanguage Series) Pascal is a good Pascal compiler, ¢¢¢¢¢ capable of producing standalone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K. $99.95. TML Systems, PO Box 361626, Melbourne, FL 32936. NCP (Jun 86)

EDUCATION

ChipWits is a combination game and teaching tool. Players create ¢¢¢¢¢ programs to maneuver robots through a set of 8 mazes. The

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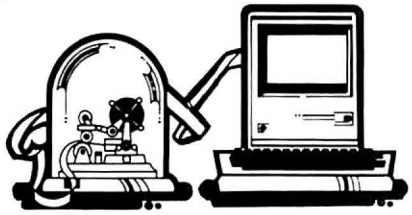
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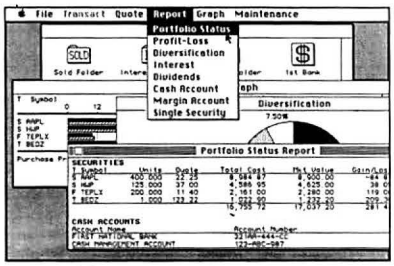
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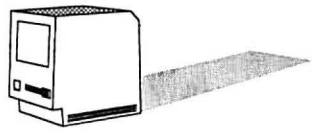
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MINIFINDERS



programs are written in *ChipWit*'s built-in icon-based programming language (IBOL). IBOL is a nearly perfect introduction to programming for nonprogrammers. $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

DietMac is a database consisting of about 800 foods with ♦♦♦♦ nutritional information, from which to choose for planning daily menus. The Modify Food Data option allows users to customize and update data. Some on-screen help. $79. Tess Data Systems,17070 Red Oak Drive, Houston, TX 77090. CP (May 86)

KidsTime is a package of five quality educational programs for ♦♦♦♦ children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one is a nice introduction to musical notes. Sparse documentation. $49.95. Great Wave Software, PO Box 5847, Stanford, CA 94305. CP (Oct 86)

MacChemistry is a two-disk set consisting of a titration program, ♦♦♦ a periodic table program, *MacNest* (a scrapbook with indexing), and a disk of *MacPaint* files. *MacNest* is of general appeal. $145. Fortnum, 31 W. Sierra Madre Blvd., Sierra Madre, CA 91024. NCP

MacEdge and **MacEdge II** each contain 8 reading or math drill ♦♦♦ programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws — they require learning format as well as skill. $49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

MacStronomy is a good package for novice sky watchers. Has ♦♦♦ expandable database of sky objects that can be customized by the user. New version is very fast. $75. Etlon Software, PO Box 649, Lafayette, CO 80026. CP (Apr 86)

MacType offers structured typing instruction. Can teach both ♦♦♦♦ standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. $49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this ♦♦♦ arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

NotePro is an educational package that teaches users to organize ♦♦♦♦ and make best use of their notes. Consists of five well designed parts, which can be used individually or as a whole. $59.95. Learning Skills, PO Box 8038, Reno, NV 89507. NCP (Jul 86)

PowerMath is an equation solver. Handles problems ranging from ♦♦♦♦ the simplest to the extremely complicated. Step-by-step solutions make this a powerful teaching tool. Results can be displayed numerically or graphically. Slow, but potent program. $99.95. Industrial Computations, 40 Washington St., Wellesley, MA 02181. NCP

Score Improvement System for the SAT is a no-nonsense drill ♦♦♦♦ and practice session covering practice tests, vocabulary, reading comprehension, math and quantitative comparisons. On-line tutoring for wrong answers. $99.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (May 86)

Speed Reader II builds skills sequentially to develop faster, more ♦♦♦ efficient reading and improve retention. Scores are kept, and can be graphed. High school level selections included, other levels available on data disks. $69.95. Davidson & Associates, 3135 Kashiwa St., Torrance, CA 90505. CP? (Apr 86)

Tellstar I & II are Mac astronomy programs. Have extensive ♦♦♦♦♦ databases, quick sky plotting and can locate specific objects. Level II has southern hemisphere star table, Messier objects. $49.95 (level I), $79.95 (level II). Spectrum HoloByte, 1050 Walnut, Boulder, CO 80302. NCP (Apr 86)

Turbo Turtle is a turtle graphics program primarily designed as a ♦♦♦♦ learning tool for children. Uses Logo commands for graphics, but is not a full Logo implementation. Simple to use, good introduction to Logo for young children. $59.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

ENTERTAINMENT

A Mind Forever Voyaging is a departure in text adventure games. ♦♦♦♦ It has a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only a few puzzles to solve. Requires 512K+. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP (Apr 86)

Airborne is a classic arcade-style game with "real" sound effects. ♦♦♦ The player defends against an assault from flying enemies. Game noises digitized from actual recordings add to the game. $34.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP

Alter Ego simulates the entire lifetime of a fictional character. The ♦♦♦ player's reaction to each multiple-choice event shapes the character's future relationships, job, health, etc. Spectacular the first time you play; after that there are too many similarities to previous characters. $59.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (June 86)

Amazon is an illustrated adventure authored by Michael Crichton. ♦♦♦ Unravel the fate of a doomed expedition with the help of Paco the talking parrot. Three difficulty levels, good sentence parser. $49.95. Telarium, 1 Kendall Sq., Cambridge, MA 02139. CP (Feb 86)

The Ancient Art of War gives users a chance to refight some ♦♦♦♦♦ famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. $49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr 86)

Archon pits the forces of Light against Dark in a quest to gain ♦♦♦♦♦ control of five Power Points on a checkerboard grid. The shifting cycles of squares' colors keeps the balance of power ever-changing. One or two players. $44.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Oct. 86)

Balance of Power is the world's first computer peacegame. This ♦♦♦♦♦ simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. $54.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

Baron is the world of real estate, in a financial simulation. Buy and ♦♦♦♦♦ option properties in five key areas; invest in industrial, residential, or land property; or put cash aside in high-interest accounts. $59.95. Blue Chip, 6740 Eton Ave., Canoga Park, CA 91303. CP

Borrowed Time casts players as detectives who have to solve their ♦♦♦♦ own murder — before it happens. This game requires players to think and act like a detective to solve the game. Good sentence parser, sketchy Mac interface. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (May 86)

Brataccas is a true action adventure. Terrible, confusing instruc- ♦♦♦ tion manual mars an otherwise good game. Excellent graphics, unusual sentence parser. $44.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

Bridge 4.0 provides three other players and the cards for a game ♦♦ of rubber bridge. It's an average (Goren) bidder and a less than good card player. Good if it's the only game in town. Plays slowly since it's written in BASIC. $29.95. Artworx Software, 150 N. Main St. Fairport, NY 14450. CP (Sep 86)

Championship Boxing allows statistical replay involving famous ♦♦♦♦ boxers. Players can modify existing boxers and can create their own fighters. Good sound and graphics. $39.95. Sierra, PO Box 485, Coarsegold, CA 93614. CP (Mar 86)

Cyborg is a text adventure game with an interesting twist. Robot ♦♦♦ brain is implanted in concert with yours. It scans, evaluates, and reports, then carries out actions. Word and sentence understanding is very good. Absorbing game for adventurers. $39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

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MINIFINDERS



Deadline is a text adventure in which the player is a detective
$ called in to investigate what seems like a simple drug overdose. The family lawyer thinks it was really a murder. You have 12 game hours to find the killer! $49.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Deja Vu: A Nightmare Comes True is a graphic adventure that
$$$$$ breaks new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86)

Dinner at Eight is a useful recipe filing system that includes a
$$$$ collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes accordingly. $59.95. Rubicon, 6300 La Calma Dr., Austin, TX 78752. CP (Jan 86)

Enchanted Scepters is a surround sound graphic adventure
$$$$ game. It has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. A worthwhile adventure experience. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP (May 86)

Flight Simulator puts you at the controls of a small plane (prop or
$$$$ jet) and lets you roam North America. As difficult as real flying. Mac version has features not found on earlier versions, including spotter aircraft. Not all features available on 128K. $49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98052. CP

Fokker Triplane is about as near to flying as you can get seated in
$$$$ front of a computer. Very realistic simulation and excellent graphics. Well designed and implemented. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Gateway comes with 3 full-color prints. You inherit a boring old
$$$ building from a supposedly rich uncle, eventually learning that the building is a "gateway" to a lost civilization. $49.95. Pryority, 635 Sanborn Rd., Salinas, CA 93901. CP (Prem)

Gato puts players in command of an American submarine in World
$$$$$ War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." $39.95. Spectrum Holobyte, 1050 Walnut St., Boulder, CO 80302. CP (Nov 85)

Grand Slam is an absorbing and realistic tennis simulation game.
$$$$ Practice or play tournament against Mac-controlled players with different styles and abilities on four different surfaces. 512K or Mac Plus. $49.95. Infinity Software, 1331 61st St., Emeryville, CA 94608. CP (Nov 86)

Grid Wars is a three-dimensional arcade-style game. Good play-
$$$ ability, for those that enjoy shoot-em-ups. Bizarre graphics. $39.95. Ann Arbor Softworks, 308½ S. State Street, Ann Arbor, MI 48104. CP (Apr 86)

Gypsy is a computerized, customizable Ouija board. More than just
$$$$ a software package, users get a pasteboard playing surface and a Mouse Mover with 99 ball bearings. $39.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Prem)

Legacy is a two-part text/graphic adventure. A magical orb in Drab
$$$$ Castle must be found through the use of spells and careful adventuring. Well-constructed game. $45. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. CP

Lode Runner is a 150-screen action-strategy challenge that
$$$$ requires a joystick for truly effective play. Move around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. $39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

The Lüscher Profile is a psychological profile generator that
$$$ bases its conclusions on users' responses to seven different color tests (color charts are enclosed in the package). $39.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Aug 86)

MacChallenger lets players land a space shuttle. The graphics of
$$$ this flight simulator are crude and it's a hard machine to fly, but it's also a lot of fun. Lets you record your landing attempt and then review it from any of ten camera angles. $49.95. Aegis Development, 2210 Wilshire Blvd., Santa Monica, CA 90403. CP (Feb 86)

MacGolf is a dynamic simulation of real golf. Players have a
$$$$$ choice of courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. $59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (May 86)

MacInooga ChooChoo is a set of electronic toy trains. Run on the
$$$$ layouts provided, or create your own, as complex as you wish. Create scenery using built-in tools or import fancier *MacPaint* scenery. $39. Fortnum, 31 W. Sierra Madre Blvd., Sierra Madre, CA 91024. NCP (Apr 86)

MacVegas contains seven complete casino-style games: bacca-
$$$ rat, blackjack, craps, keno, poker, roulette and slots. All are fairly standard, but generally well designed. House rules can be selected from a menu. The games are all fun to play, but not particularly absorbing. $59. Videx, 1105 Northeast Circle Blvd., Corvallis, OR 97330. CP

Make Millions is a fascinating business simulation in which the
$$$$$ player competes against the computer to take control of five companies, then run them profitably. Appeals to the closet capitalist in all of us. $49.95. Scarborough Systems, 55 South Broadway, Tarrytown, NY 10591. CP

MazeWars+ is an interactive, multiplayer game to be played on
$$$$ AppleTalk or through a modem link. Chase opponents through a four level maze. Smooth animation, slick graphics and good playability make this a natural for telecommunications fans. Requires 512K+, AppleTalk or Hayes compatible modem. $49.95. MacroMind, 1029 W. Wolfram, Chicago, IL 60657. NCP (Nov 86)

Mind Over Mac features five games. Entertainment for the whole
$$$$ family. Good graphics paired with synthesized sound and on-screen help. $49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

Mind Prober is a demonstration of a very simple expert-style
$$ system. How well do you know your friends? Answer certain statements as either true or false, and the computer prints a 3- to 5-page psychological profile of subject in business, stress, sex and other situations. $50. Human Edge Software, 2445 Faber Pl., Palo Alto, CA 94303. CP

The Mist is an all-text "interactive novel" based on a short story by
$$$ Stephen King. Vivid graphic and sometimes gory descriptions compensate for the game's muddled sentence parser. The story is involving, while the game is overly lock-step. $39.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (May 86)

NewGammon is animated backgammon that will challenge even
$$$$ good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high speed mode is included. $39.95. Newsoft, PO Box 4035, Newport Beach, CA 92661. CP

Orbiter puts a real space shuttle on the Mac screen. A multitude of
$$$$$ controls, intelligent on-board computer with speech capabilities, real-time graphics and 16 distinct missions help this program succeed as both a game and a simulation. $49.95. Spectrum HoloByte, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

Orbquest is a fantasy role-playing adventure with better-than-
$$$$ average puzzles and an excellent sense of humor. Not as sophisticated as some, but a good value. $49.95. QWare, PO Box 850415, Richardson, TX 75085. CP (Dec 86)

Perplexx is a board word game based on *Scrabble*. Players can
$$$$ vary the rules and board to suit their tastes and skills. Up to four can play and the game can either be an active player or a scorer and arbiter. Has a 90,000+ word dictionary. $39.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

Pinball Construction Set lets users create their own pinball
$$$$ games, as elaborate or as easy as desired. Uses *MacPaint* for backgrounds and has lifelike sounds (on 512K+ Macs). No documentation to speak of. $40. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Jan 86)

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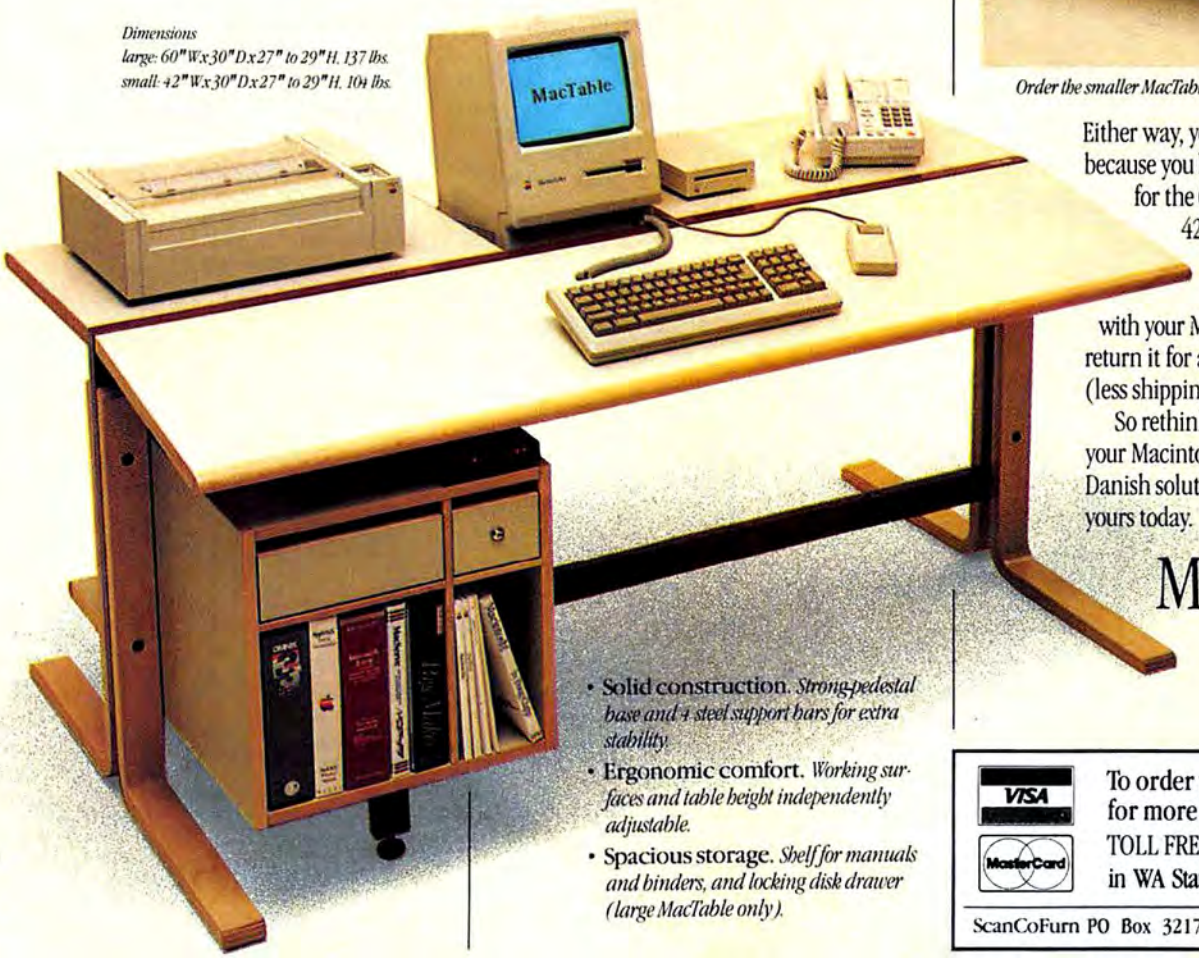
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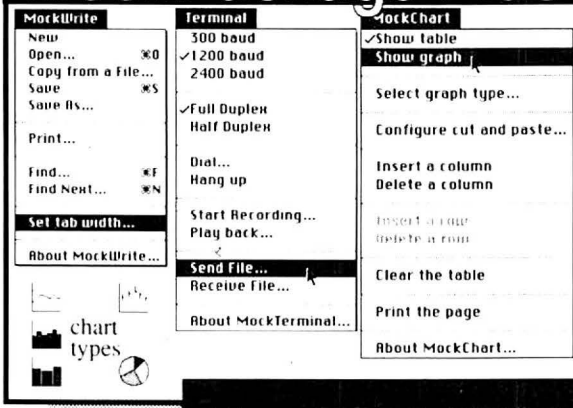
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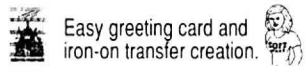
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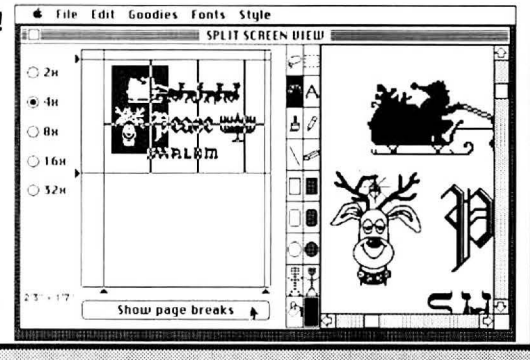
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Psion Chess is as good a micro chess player as you'll find. This ♟♟♟♟♟ 1984 World Micro Champion makes superb use of graphics and the Mac interface. Switch between 6 languages for a touch of spice. $59.95. Psion, 40 Lindeman Dr., Trumbull, CT 06611. CP (Mar 86)

Real Poker is five-card draw against five other players with Old ♟♟♟♟♟ West names, distinct personalities and playing styles, in a saloon setting. Dealing and play are very fast. Game evaluates your hand. $39.95. Henderson Associates, 980 Henderson Ave., Sunnyvale, CA 94086. CP

Rogue is a strategy dungeon adventure in which each quest is ♟♟♟♟ completely different. Randomly generated rooms, monsters and treasures keep even veterans on their toes. $39. Epyx, 600 Galvesto Dr., Redwood City, CA 94063. CP (Feb 86)

Sargon III is a chess program with 9 levels of play, problem- ♟♟♟♟ solving modes, take back, hint, etc. Easy Play blocks *Sargon* from stealing search time during player's move, effectively doubling number of levels. Disk stores 107 classic games for review and replay. $49.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (Mar 86)

Shanghai challenges players to clear a board of all 144 tiles, by ♟♟♟♟♟ matching pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Oct 86)

Skyfox is a sophisticated 3D shoot-em-up. You're fighting tanks, ♟♟♟ planes, and enemy cities floating in the sky. Fast graphics, good sound. $39.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP

Smash Hit Racquetball is an accurate and entertaining simula- ♟♟♟♟♟ tion of a day on the courts. Digitized sound adds to the realism. Includes a hard disk install, unusual for a game. The low price makes this the perfect Mac gift. $14.95. Primera Software, 33 Norwood Ave., Kensington, CA 94707. CP (Dec 86)

Strategic Conquest is large scale, strategic conflict on the Mac. ♟♟♟♟ This very involved war game will be enjoyed by those who like this genre. $49.95. PBI Software, 111 Triton Dr., Foster City, CA 94404. CP (Dec 85)

Suspended is Infocom's most unique text game. Using a small ♟♟♟♟ plastic board and six markers, the player keeps track of six uniquely designed robots which check on damage to a complex's machinery and report back what they perceive as the problem. $49.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

The Toy Shop is a construction kit for building 20 different working ♟♟♟♟ model toys. Some parts can be customized. Manual gives clear instructions, but many toys are too complex for a child to build. $64.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Ultima II players take the part of a character who travels through ♟♟♟♟ land, sea, air, space and even time itself in a quest to find and defeat the evil sorceress Minax. Good Mac interface; excellent game; confusing graphics. $59.95. Sierra, PO Box 485, Coarsegold, CA 93614. CP

Ultima III allows up to four characters to cooperate to explore the ♟♟♟♟♟ vast wilderness of Sosaria; dungeons, oceans, and the Moon Gates to help solve the adventure. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Winter Games lets up to eight players compete against each other ♟♟♟♟ in Olympic events including figure skating, bobsledding, biathlon and ski-jumping. Excellent animation, good graphics, good theme music. $39. Epyx, 600 Galvesto Dr., Redwood City, CA 94063. CP (Mar 86)

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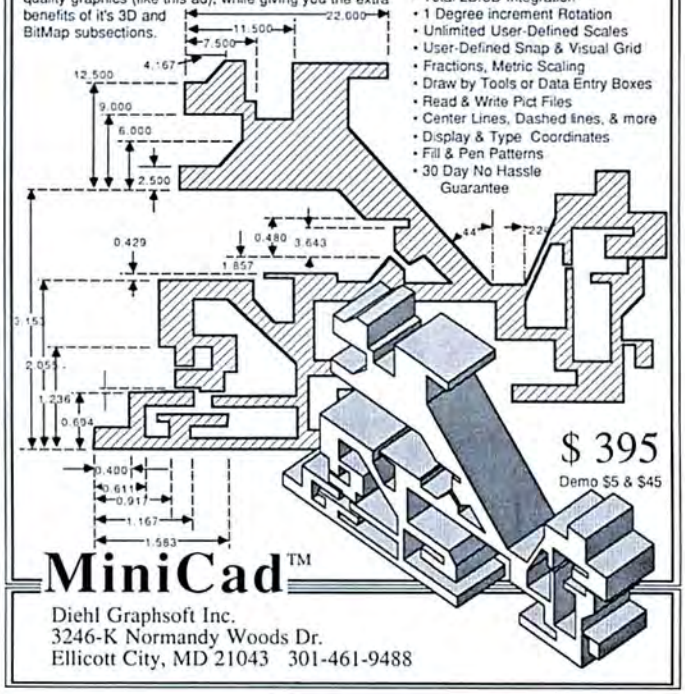
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Wizardry is an outstanding dungeon exploration adventure pitting ★★★★★ a party of up to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. $59.95. Sir-Tech, 6 Main St., Ogdensburg, NY 13669. CP

Word Challenge is a *Boggle* lookalike. Features multiple (26) skill ★★★★ levels and an extensive dictionary. Even "pro" *Boggle* players should find a level that will challenge them. $39.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

WordPlay is a word game with over 50 crossword puzzles for ★★★★ different levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. $49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

Xyphus is a role-playing game pitting four characters (fighters or ★★★★ wizards) against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. $39.95. Penguin, PO Box 311, Geneva, IL 60134. CP

Zork II is where the adventure continues in the underground ★★★★★ empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Zork III is the final chapter in the trilogy. Players come up against ★★★ the ultimate enemy — the Dungeonmaster himself. More closed-ended than previous *Zorks*. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

MUSIC

ConcertWare+ is an enhanced version of *ConcertWare*. Has ★★★★ different instruments and can use any four of a set of eight at any point in a piece. Can read and use *ConcertWare* and *MusicWorks* files. $69.95. Great Wave Software, PO Box 5847, Stanford, CA 94305. NCP (Nov 85)

Deluxe Music Construction Set is a good general purpose music ★★★★ program. An active piano keyboard and instant audio feedback make this program perfect for educational applications, and the advanced notational capabilities will satisfy most advanced musicians. $50. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Mar 86)

Performer is a strong contender for the high-end of the MIDI ★★★★ sequencer market. Only those experienced with MIDI should get this. Files can be transported to *Professional Composer* for editing. No direct track or segment looping. $295. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP

Professional Composer is aimed at music professionals. Pro- ★★★ duces performance-quality sheet music; has only limited playback facilities. $495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Prem)

HARDWARE & ACCESSORIES

Ergotron is a Mac (and external drive) holder that allows a full ★★★★ range of swiveling and tilting. Very strong, this well made unit is also very easy to use. $99.95. Ergotron, PO Box 17013, Minneapolis, MN 55417.

Hard Disk 20 is Apple's entry in the exploding hard disk sweep- ★★★★ stakes. This quiet, small unit uses Apple's new Hierarchical File System (HFS). The lack of utility software (spooler, backup, security) is its only drawback. $1199. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 86)

HyperDrive HD20 is an internal 20-megabyte hard disk. It only ★★★★ adds about 5 pounds to the Mac's weight. Full featured unit

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- Full Screen Editor linked to compiler locates and identifies all errors
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Pascal and Modula-2 source code are nearly identical. Modula-2 should be thought of as an enhanced superset of Pascal. Professor Niklaus Wirth (the creator of Pascal) designed Modula-2 to replace Pascal.

Added features of Modula-2 not found in Pascal

- CASE has an ELSE and may contain subranges
- Programs may be broken up into Modules for separate compilation
- Machine level interface
 - Bit-wise operators
 - Direct port and Memory access
 - Absolute addressing
 - Interrupt structure
- Dynamic strings that may be any size
- Multi-tasking is supported
- Procedure variables
- Module version control
- Programmer definable scope of objects
- Open array parameters (VAR r: ARRAY OF REALS;)
- Elegant type transfer functions

Mac Plus Benchmarks (secs)	Compile	Link	Execute	Optomized Size
Sieve of Eratosthenes:	7.3	5.8	5.1	1257 bytes
Float	8.0	8.6	10.3	3944 bytes
Calc	6.8	5.7	4.3	1736 bytes
Null program	5.7	5.6	—	1100 bytes

```
MODULE  Sieve;
CONST   Size = 8190;
TYPE    FlagRange = [0..Size];
        FlagSet = SET OF FlagRange;
VAR     Flags: FlagSet;
        i:     FlagRange;
        Prime, k, Count, Iter: CARDINAL;
BEGIN   (*$S-,$R-,$A+ *)
  FOR Iter:= 1 TO 10 DO
    Count:= 0;
    Flags:= FlagSet(); (* empty set *)
    FOR i:= 0 TO Size DO
      IF (i IN Flags) THEN
        Prime:= (i * 2) + 3; k:= i + Prime;
        WHILE k <= Size DO
          INCL (Flags, k);
          k:= k + Prime;
        END;
        Count:= Count + 1;
      END;
    END;
  END;
END Sieve.
```

```
MODULE Float;
FROM MathLib0 IMPORT sin, in, exp,
                     sqrt, arctan;
VAR x,y: REAL; i: CARDINAL;
BEGIN (*$T-,$A-,$S-*)
  x:= 1.0;
  FOR i:= 1 TO 1000 DO
    y:= sin (x); y:= ln (x); y:= exp (x);
    y:= sqrt (x); y:= arctan (x);
    x:= x + 0.01;
  END;
END float.
```

```
MODULE calc;
VAR a,b,c: REAL; n, i: CARDINAL;
BEGIN (*$T-,$A-,$S-*)
  n:= 5000;
  a:= 2.71828; b:= 3.14159; c:= 1.0;
  FOR i:= 1 TO n DO
    c:= c*a; c:= c*b; c:= c/a; c:= c/b;
  END;
END calc.
```

Product History

The TDI Modula-2 compiler has been running on the Pinnacle supermicro (Aug. '84), Atari ST (Aug. '85), Amiga (Jan '86) and will soon appear on UNIX in the 4th Qtr. '86.

Regular Version $89.95 Developer's Version $149.95 Commercial Version $299.95

The regular version contains all the features listed above. The developer's version contains additional Mac modules, macros and demonstration programs – a symbol file decoder – link and load file disassemblers – a source file cross referencer – the kermit file transfer utility – a Modula-2 CLI. The commercial version contains all of the Mac module source files.

Other Modula-2 Products

Kermit	– Contains full source plus $15 connect time to Compuserve.	$29.95
Examples	– Many of the programs from Inside Macintosh translated into Modula-2.	$24.95
GRID	– Sophisticated multi-key file access method with over 30 procedures to access variable length records.	$49.95

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MINIFINDERS

with spooler, security program and backup utility. It could use memory a bit more efficiently. $2195 installed in a 512K+ Mac. General Computer Company, 215 First St., Cambridge, MA 02142.

Macbottom 20 is a small, external unit that sits under the Mac and connects to the external drive port (not SCSI). Good, reliable, but noisy unit. Requires 512K+. $1595. PCPC, 6204 Benjamin Rd., Tampa, FL 33614.

MacCharlie's components slip around the Mac and convert it into an IBM PC clone. Amazingly, it works well. The enlarged keyboard has a few bugs but is a joy to use. $795 with 256K RAM and one floppy drive. $995 with 640K RAM and two floppy drives. Dayna Communications, 50 S. Main St., Salt Lake City, UT 84144. (Dec 85)

MacIntizer is a graphics tablet and absolute positioning device that replaces the mouse. Various scales are possible. $599. GTCO Corp., 7125 Riverwood Dr., Columbia, MD 21046. (Jan 86)

MacNifty Sound Digitizer turns ordinary analog sound input into digital waveforms which can then be manipulated using the *SoundCap* software it comes with. Capable of truly stunning effects. Requires 512K+. $129.95. Kette Group, 6860 Shingle Creek Pkwy., Minneapolis, MN 55445.

MacNifty Stereo Music System converts Mac sounds to simulated stereo by splitting highs and lows between two speakers. User controls bass, treble, balance, and volume. $79.95. Kette Group, 6860 Shingle Creek Pkwy., Minneapolis, MN 55445.

MacNifty Switch allows any port on your Mac to connect to two peripherals. Turn the knob to switch between the two devices. $34.95. Kette Group, 6860 Shingle Creek Pkwy., Minneapolis, MN 55445.

MacTable is a work table designed exclusively for the Mac. Exquisite Scandanavian style laminated. Same color as the Mac. Resist area for Mac, tilt screen up for easy viewing. Other surfaces adjustable. Special space for ImageWriter, modem, cables and printer paper. 60" $399, 42" $339. ScanCoFurn, 1402 Third Ave., Seattle, WA 98101.

MacTablet is a stylus-driven graphics tablet. Users can easily sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. $495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

MacVision is a digitizer that uses an ordinary video camera for input. Capable of extremely fine results and special effects. Easy to use and well documented. $399.95. Koala, 3100 Patrick Henry Dr., Santa Clara, CA 95052.

Magic is both the most intimidating and easiest to use digitizer available. Use a regular video camera for input. Once the crowded screen is mastered, any effect is possible. $399, $549 with camera. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706.

MouseTop is unquestionably the cutest mouse cover on the market. Gray, plush fur, round felt ears and button nose and eyes make your mouse look authentic. $5.49; $5.95 for MouseTop wearing wire-frame glasses. H&H Enterprises, PO Box 2672, Corona, CA 91718.

Moustrak is a fabric covered foam mousing pad. It will increase the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desk top environment. $10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

NoLabelSystem is a plastic permanent labeling system in which users slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them easier to read while in the drive. $19.45. Weber & Sons, 3468 Hwy 9, Freehold, NJ 07728.

ThunderScan replaces the ribbon cartridge in an ImageWriter, which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. Images can be manipulated when created or afterward. $229. Thunderware, 21 Orinda Way, Orinda, CA 94563.

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...HARMONY

(continued from page 114)

a separate drum track began to play a bass drum and cymbals. In order to synchronize the drum track to the guitar track, rests would have to be placed in the first four bars of the drum track, until the drum began on the fifth bar. Sometimes a particular instrument won't come in right at the beginning of a bar, meaning that rests must be placed accordingly. For musicians, this is really no problem at all. For those unfamiliar with musical notation, though, this can become a frustrating trial and error affair.

Another feature that is sorely missing is the ability to select music in more than one track at a time. What is needed is a multitrack selection capability, permitting the cutting, copying and pasting of specific events in more than one track at a time.

POOR SHEET MUSIC

The documentation was an unpleasant surprise: when we opened the box, a stack of photocopied stapled sheets marked "interim manual" tumbled out. The documentation does an adequate job of explaining how to get up and running, but in no way discusses methods of using *Studio Session* to its fullest potential. The lack of a table of contents and index doesn't help matters much, either. A cover letter enclosed with the package states that the manual was being held up at the printers, and that it would be sent out as soon as it came off the presses. The cover letter wasn't dated. This particular copy was purchased and registered in June of this year, and as of press time, no finished manual has been received. There hasn't even been a notification of further delay.

Technical support is also a problem. Although the program's authors, Bogas Productions, were more than helpful in answering questions for *MacUser*, most users will have to deal with the Kette Group, the program's publisher. Their technical support is abysmal. It was next to impossible to speak to anybody who could offer any useful information, and even though we

(continued on page 188)

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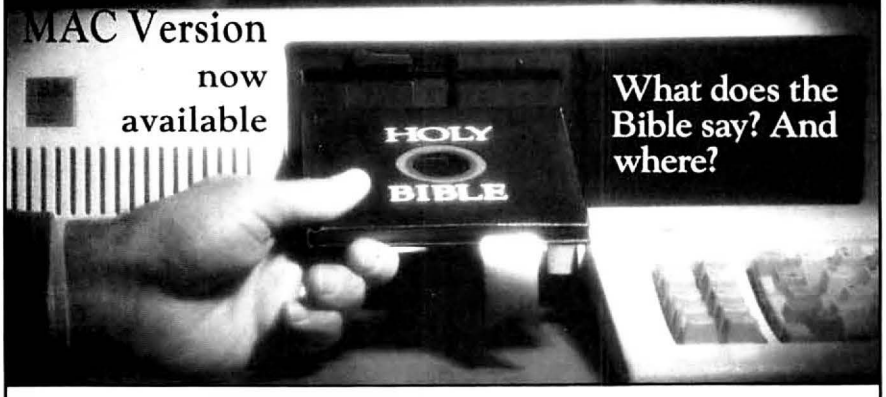
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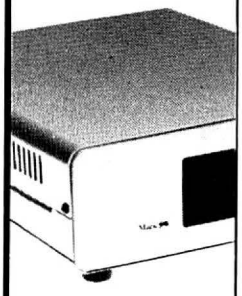
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...HARMONY

(continued from page 186)

left numerous messages, no one ever called us back. Several other registered owners have reported the same problem.

TRICKS OF THE TRADE

When composing with *Studio Session*, here are some tips that you'll find useful.

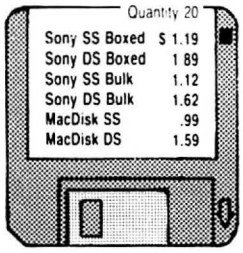
●The Mac's internal speaker doesn't do an acceptable job of reproducing the sounds that *Studio Session* is capable of generating. External amplification isn't a luxury; consider it a requirement. Cables can be purchased from Radio Shack or any other electronic parts store that will allow the Mac's sound to be piped into any stereo amplifier or receiver (you'll need a ⅛ inch mono miniplug to RCA male stereo phono jack cable, and also a Y cable with an RCA jack on one end and two RCA plugs on the other end. Both cables shouldn't cost more than $7 or $8). The Kette Group also markets a stereo amplification system that is ideally suited to the task ($74.95, including a $5 discount for *Studio Session* owners).

●A trick to getting more instruments to fit on a track is to use the *SoundCap* digitizer software to digitally mix sounds. For example, the sounds of a bass guitar and a bass drum can be merged using the Mix command in *SoundCap*, and the resulting composite sound can be saved as a single *Studio Session* instrument. Of course, there is a small loss of each separate instrument's clarity, but the number of possible simultaneous sounds can be multiplied.

●Experiment with different combinations of simultaneous instrument sounds. You'll notice (especially if you amplify the sound output) that there's a considerable amount of background noise in whatever you do (this is partly due to the Mac's less-than-high-fidelity frequency response, and also the fact that six voices are being produced instead of the standard four). This noise gets better or worse depending on which instruments are being used at any given moment. Avoid using four or five flute sounds at the same time:

(continued on page 190)

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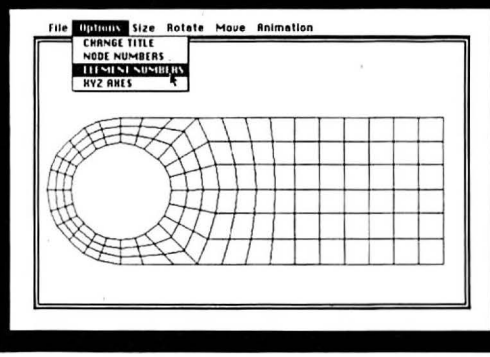
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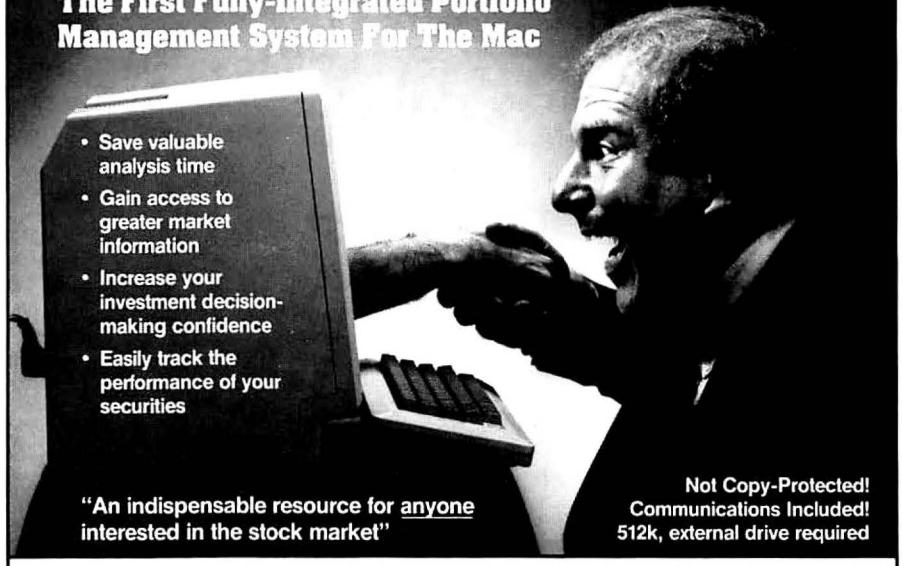
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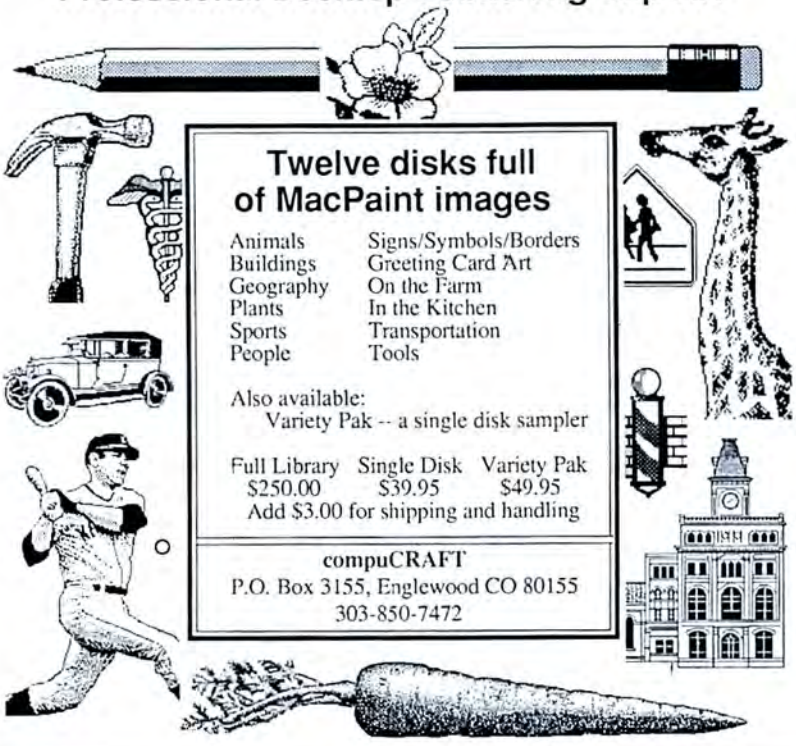
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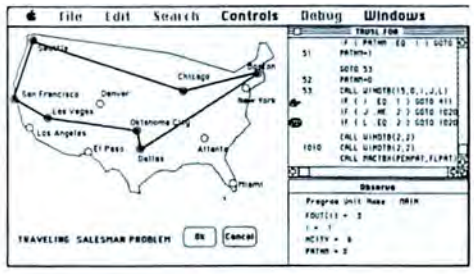
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...HARMONY

(continued from page 188)

flutes are midrange instruments, which are more prone to produce background distortion than high range sounds (cymbals, for example). In general, try to achieve a balanced representation of all of the types of instruments available.

●*Studio Session* comes with two disks packed with instrument sounds, making an 800K disk drive or a hard disk a welcome, if not necessary, addition. Keep all the instruments in one folder; *Studio Session* has problems finding instruments that are scattered around in various folders.

IT'S A WRAP

The acid test of the effectiveness of a music program is the reaction of those listening to the final product it produces. Boot up the *Studio Session* program disk, load the *Player*, and open any of the sample music files that come with the package. Hit the Play button, and stand back; it's fun to watch the reaction of nearby pedestrians.

Studio Session isn't meant to be a superior notational generator, the ultimate educational wonder or a fabulous MIDI sequencer. It fills a gap that no other Mac music package really could, or is likely to in the near future.

DAVID BIEDNY IS THE TECHNICAL EDITOR OF MACUSER.

STUDIO SESSION

Overall Rating	■ ■ ■ ■ □
Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ □ □ □
On-Screen Help	None
Performance	■ ■ ■ ■ □
Support	■ □ □ □ □
Consumer Value	■ ■ ■ ■ □

Comments: Unique music program uses digitized sounds instead of synthesized instruments. **Best Features:** Extreme creative flexibility, unlimited potential for creating new sounds with *SoundCap* software and hardware. **Worst Features:** Poor technical support by publisher, sloppy and inadequate documentation. **List Price:** $89.95. Published by The Kette Group, 6860 Shingle Creek Pkwy, Minneapolis, MN 55430. (800) 328-0184. Copy protected.

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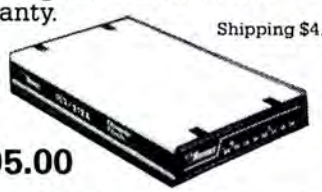
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ROMANCING...

(continued from page 121)

modore 64s and IBM PCs. The same holds true for the lack of an alarm clock, which is sometimes the only way to remember a big appointment while in the heat of the action. Considering that *Orbquest* was specifically designed for the Mac, it's surprising that these features were not just included.

A control panel would also have been welcome. The sound effects are negligible at best, and since there's very little significance to the assortment of beeps and boops the game makes, there's no reason for everyone in the room to have to hear them. If we couldn't have a control panel, the least we should expect is a Mute option.

But adventurers whose swords have been getting rusty in the wait for another adventure quest will enjoy *Orbquest*'s engrossing game play, overlooking the few small details which don't keep the game from being good just the same. If the designers show the same kind of creativity in future scenario releases — and fine-tune the background information and sparse instruction book — then we can look forward to a new adventure series that will make role-playing gamers dust off their armor.

TRACIE FORMAN HINES IS A COMPUTER GAME EXPERT AND A CONTRIBUTING EDITOR OF MACUSER.

ORBQUEST

Overall Rating	■ ■ ■ ■ □
Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ □ □ □
On-Screen Help	■ ■ ■ □ □
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ □

Comments: A role-playing adventure game in which a single character must assemble seven pieces of an orb. **Best Features:** Excellent support; good brain-twisters; tongue-in-cheek humor. **Worst Feature:** The scenario background needs a little work, either through explanations in the instructions, or by a more fleshed-out appearance. **List Price:** $49.95. Published by QWare, PO Box 850415, Richardson, TX 75085. (214) 690-6047. Copy protected.

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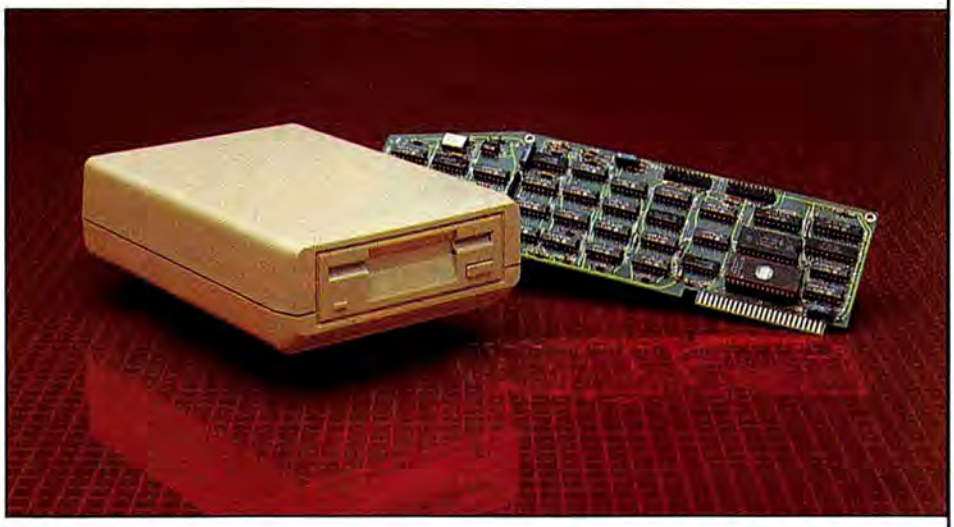
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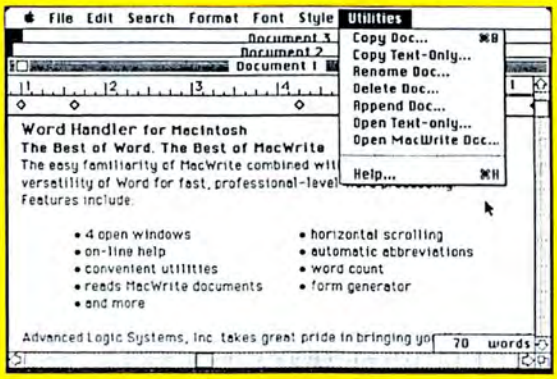
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Word Handler.™ is a powerful, full-function word processor for the 512K Mac and beyond.

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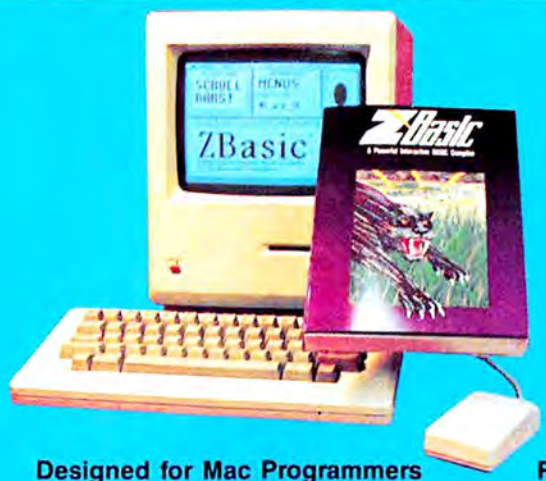
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MSBASIC™ 2.1 Interpreter	684.0	0
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Aztec™ C Compiler	6.5	240
MS™ FORTRAN Compiler	6.8	180.
TML™ Pascal Compiler	6.6	120.

*10 iterations of Sieve Benchmark from *Byte*, Jan. 1983. TML speed from *MacUser*, June 1986. C speeds from *Byte*, Nov. 1985 (non-register). MS-FORTRAN speed from *MACWORLD*-June 1986. Softworks BASIC time from *MacTutor*-June 1986.
**Compile from editor to stand-alone application. RAM disks not used.
***True BASIC™ program was not a stand-alone double-click application—This requires an optional ($500) runtime license.
Compile time was taken from interactive mode.

Lightning-Fast Compilation

"Compilation is so fast that execution is indistinguishable from a BASIC interpreter. . ."

As reviewed in **BYTE, May 1986**

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"The 387 page manual is a model of clarity and organization. The documentation is superb, solidifying our impression that someone worked incredibly hard to make ZBasic a benchmark for all other BASIC compilers."

As reviewed in **PC Week, Nov. 1985**

(The new 620 page manual is even better)

Standard Features

- Highlights Errors
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- Single Step debug
- Fast string processing
- Use both serial ports
- No garbage collection
- Device Ind. graphics
- Not Copy Protected
- Multi-line FN and IF
- Line numbers or labels
- Chain programs
- SORT source included
- Load old programs saved as text files
- Device Ind. File I/O

Ultimate Math Accuracy

The MAC version of ZBasic gives you 8 to 240 digits of configurable BCD precision (no binary rounding errors). In addition, a High-Speed SANE Floating Point option will be available late summer for $59.95 (fixed binary single and double precision).

A Portable Language

Designed as a "portable language," ZBasic is available on many popular computers including: IBM® (MS-DOS™) and compatibles, CP/M™80, Apple®IIe, IIc and TRS-80™. This allows you to easily create programs to work on many other machines.

Designed for Mac Programmers

In addition to the hundreds of comands provided with "Standard ZBasic"—this version provides lots of extras. . .

- AppleTalk™ Network commands
- MacinTalk™ (with English or Phonemes)
- Modem and Printer serial port commands
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ON DIALOG	EDIT FIELD	EDIT$
BUTTON	MENU ON/OFF	BUTTON (n)
MENU	APPLE MENU	EDIT MENU
DEFMOUSE	TIMER	TIMER OFF
TIMER ON	ON TIMER (n)	MOUSE ON
MOUSE OFF	MOUSE (n)	ON MOUSE
FILES$	SOUND	BEEP
EJECT	OPEN TALK	TALK
SCROLL BUTTON	FINDERINFO	EXPERT
WINDOW OFF	WINDOW CLOSE	WINDOW
ALERT WINDOWS	HELP WINDOWS	SEGMENT

GRAPHICS ENHANCEMENT

COORDINATE	COORDINATE WINDOW
GET and PUT	CURSOR=(watch,text,cursor,etc.)
PICTURE	PICTURE ON/OFF
PEN x,y,v,m,pattern	TEXT font, size, face, mode
SCROLL	LCOPY and PAGE LPRINT
CLIPBOARD LOAD	CLIPBOARD SAVE

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As reviewed in **PC WEEK**

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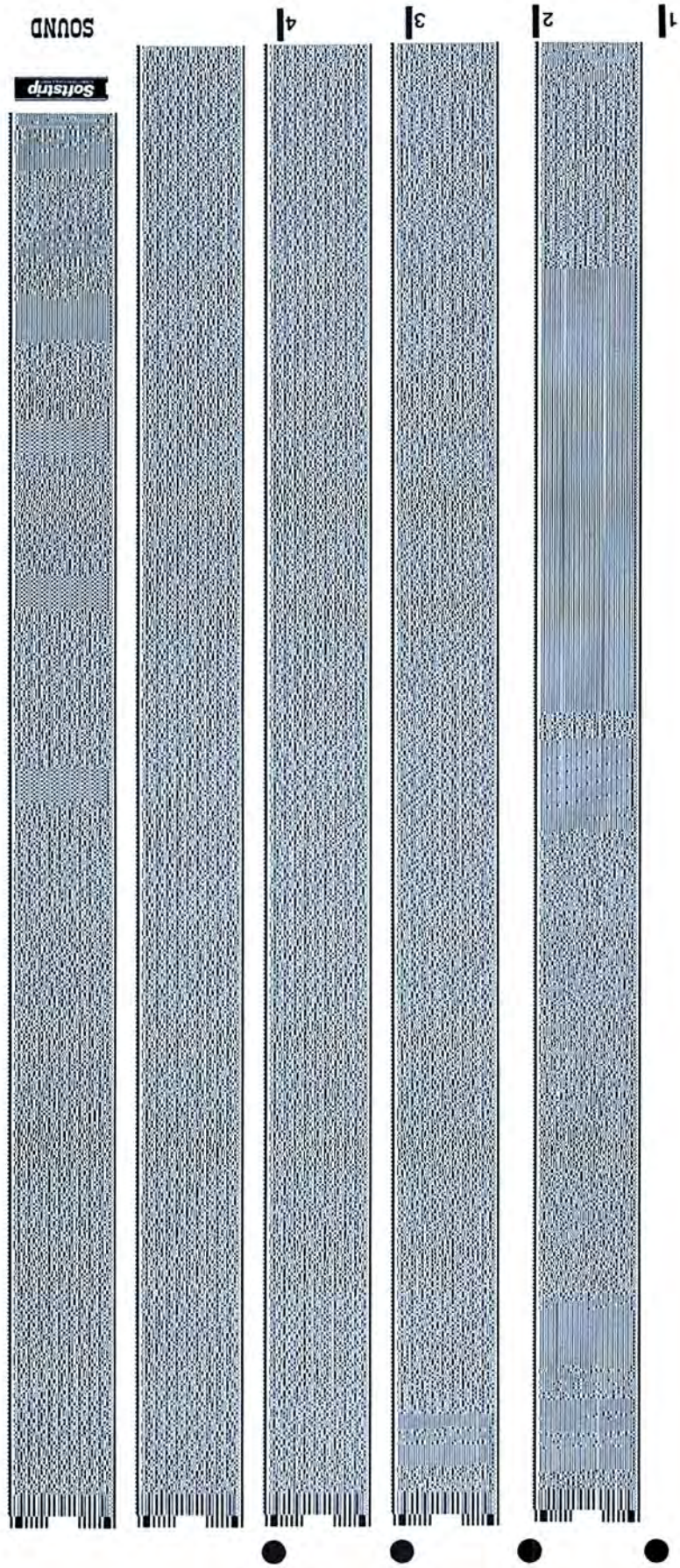
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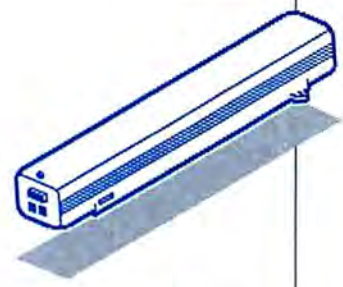
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THE STRIP SHOW

This page contains Softstrips: programs and data in a special machine-readable form. The material can range from straight, unformatted data to full-blown Macintosh applications.

To use this material, you'll need a Cauzin Softstrip reader. Readers are available from your local dealer. Be sure you get the Macintosh accessory kit. They're easy to use, well made, and simple to store.

The strips printed in the October issue were rendered unreadable by our printer! Those black blotches prevent the reader from doing its job. Since many of you have asked for those programs, we are rerunning them here.

The major offering consists of Steve Martin's TML Pascal listings from his "The Sound of Pascal" article. The other strip is a program called *Mad Menus*. It's by Howard Katz of Burnaby (that's near Vancouver), British Columbia, and is here with his permission. It does some, unh, unusual things with the menus and screen. It's also absolutely safe and will not harm any Mac or system.

We'd like to know how you are using these strips (if you are!), how you like the Cauzin Reader, and, most importantly, what you'd like to see us publish in strip format.

We will continue to publish strips containing source code from articles, but we'd like to go further. Do you want to see games or utilities? Standalone applications or source code to run or compile? Let us know. Write to S. Strip, c/o *MacUser*, 25 West 39th Street, New York, NY 10018.

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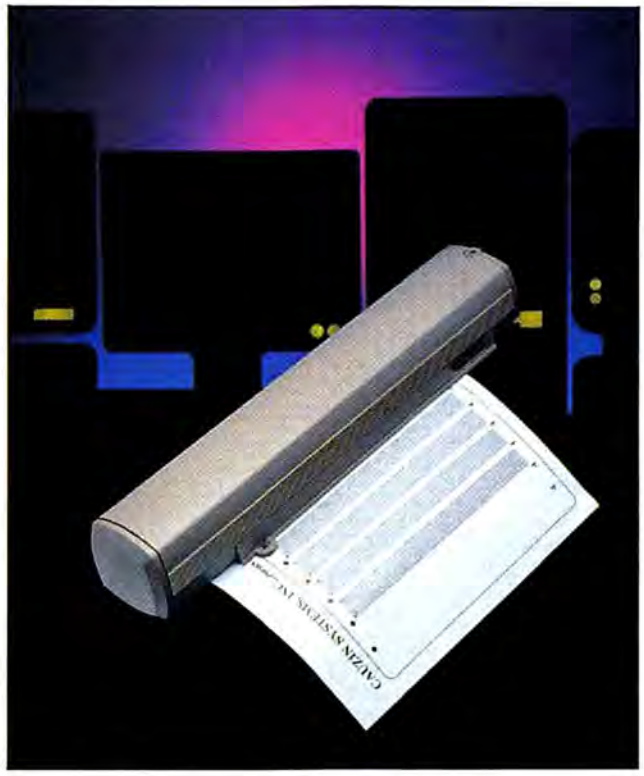
What is Softstrip™?

In case you're one of the few Macintosh users who hasn't heard about Softstrip yet, here's what you've been missing. The Softstrip System, in effect, replaces the floppy disk with paper. The centerpiece of the system is the Cauzin Softstrip™ reader — a compact (3" x 16") optical scanner that reads "data strips" printed on regular paper. Each data strip is about ½" wide and up to 9½" long. It encodes 8-bit ASCII data into machine-readable form.

The system uses a concept similar to supermarket bar codes, except it can store or retrieve much more data per printed page. One 8½" x 1" sheet of paper can hold as much as 44K of information. And you can create your own data strips with a dot-matrix or laser printer, or a printing press (as so many publications are beginning to do right now).

What can it mean for you?

Just as the floppy disk expanded software and data distribution beyond anyone's dreams, Softstrip now offers the next great leap forward. Anything you can put on a disk you can put on a Softstrip data strip: information, software programs, video games, sheet music . . . the list is virtually endless.



And there is no limit to the *kinds* of files that can be stored on a data strip: text, binary, ASCII, graphics, sound, BASIC, Assembly Language and more. Any combination of files can be stored on a data strip (or group of data strips).

Who is already using Softstrip™?

Book and magazine publishers are turning to Softstrip in ever-increasing numbers to bring their readers program material right from the printed page. Software publishers can let you sample their latest programs on inexpensive, easy-to-produce printed pages as well. Product presentations, promotional literature, even lengthy instructions, can be produced in extremely limited space. And educational material, from teacher manuals to text books are being provided on Softstrips to give new impetus to computer-aided instruction.

User groups now offer their members a low-cost alternative to disk copying and program sharing. With the Softstrip System's ability to use the same material on different computers, media incompatibility is no longer a problem. Businesses can update prices and catalogs inexpensively and quickly. Time-sensitive data can be distributed faster and more accurately than ever before. Archival data can be linked with any computer, then stored on paper, in file cabinets!

What do the professionals say?

Critics from the whole spectrum of computer and business publications have given the Softstrip System unanimous raves. Here are a few of their comments:

"Last time out, when we visited Washington, D.C., for a peek into Congress' crystal ball, we discovered that one of the most significant changes the Office of Technology Assessment predicts for the work place is the rise in technology that can eliminate the need for keyboarding data into computers. For once, Congress is right on target: That technology is already here in the form of Softstrip."

— D & B Reports

"Using the system is as easy as installing it. The reader works flawlessly. The accompanying manual contains sample programs in strip form. The system successfully read every strip into my Apple, even when I intentionally made small errors in alignment. Cauzin Systems has crafted a very fine product at a reasonable price."

— inCider

"It is possible to crumple a page containing Softstrips and then smooth it out and read the data successfully. This ability to correctly read under less than perfect conditions is a major strength of the system. The Softstrip System has the potential to revolutionize how we receive, and in fact use, data."

— MacUser

What are you waiting for?

To make it as easy and inexpensive as possible for you to acquire your Softstrip System, we've put together a complete package to get you started immediately — plus a FREE bonus. You get the Cauzin Softstrip™ reader (retail value $199.95), the Macintosh Accessory Kit, containing everything you need to link the reader to your Mac, the $24.95 Developer's Handbook (to write your own custom software) and the Macintosh Stripper Software (retail value $19.95). The total retail value is $244.85. But you pay only $199.95, plus $10 shipping, handling & insurance, for the whole package.

Take our 30-day no-risk trial and get this FREE bonus!

Just for trying the complete system for 30 days, at our risk, we'll give you — absolutely free — MacPlenty Softstrip software, which has 16 utility programs, 12 desk accessories, Clip Art™, R Font Library and an array of games and entertainment. And you'll also receive a one-year subscription to The Cauzin Effect, a monthly newsletter containing information on the latest available StripWare™ and other new developments. MacPlenty and The Cauzin Effect have a total retail value of $43.95, and they're yours free!

Fill out and mail the order form below now. This is your opportunity to acquire everything you need to take advantage of the new technological era dawning with Softstrip™. Send your order right away.

Send to: MacUser, 831 Federal Rd., Brookfield, CT 06804

Please send me the complete Softstrip System, including the Softstrip reader, Macintosh Accessory Kit, Developer's Handbook and Macintosh Stripper Software for just $199.95 plus $10 shipping, handling & insurance (retail value $244.95). Also send MacPlenty Softstrip software and a one-year subscription to The Cauzin Effect, absolutely free. If I am not satisfied, for any reason, I may return my complete Softstrip System within 30 days for a full refund. MacPlenty and The Cauzin Effect are mine to keep regardless.

CHECK HERE FOR THESE OPTIONS. Also send me

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- CompuCRAFT
 P.O. Box 3155
 Englewood, CO
 (303) 850-7472

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MacPalette by Microspot enables you to print multicolored pictures and text from existing Macintosh software using the Imagewriter II. MacPalette will colorprint your existing documents from MacDraw, MacDraft, MacProject, MacWrite, JAZZ, Microsoft Chart, Word, etc. (not MacPaint). It now prints black as a true black instead of mixing a black.

- CompServCo
 800 Freedom Lane
 Slidell, LA 70458
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 Ann Arbor, MI 48104
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 40 Washington Street
 Wellesley, MA 02181
 (617) 235-5080

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- Allotype Typographics
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 (313) 663-1989

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 (715) 324-5487

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- CompServCo
 800 Freedom Lane
 Slidell, LA. 70458
 (800) 272-5533 or (504) 649-0484

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 Columbus, OH 43202
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- Micro Motion
 8726 S. Sepulveda Boulevard, #A171
 Los Angeles, CA 90045
 (213) 821-4340

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 (313) 996-8108

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A network for Apple Macintosh's designed by educators for educators. Waterloo MacJanet creates an interactive classroom network using Macintosh workstations connected via Appletalk. Waterloo MacJanet features ease of administration, standard Macintosh user interface, secure file-sharing, and spooled print to the LaserWriter.

- WATCOM Products, Inc.
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 Waterloo, Ontario, Canada N2L 3X2
 (519) 886-3700 Telex 06955458

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- CMA Micro Computer Division
 55888 Yucca Trail, PO Box 2080
 Yucca Valley, CA 92286-2080
 (619) 365-9718

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 (415) 849-2331

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 (415) 484-3322

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 (919) 746-4961

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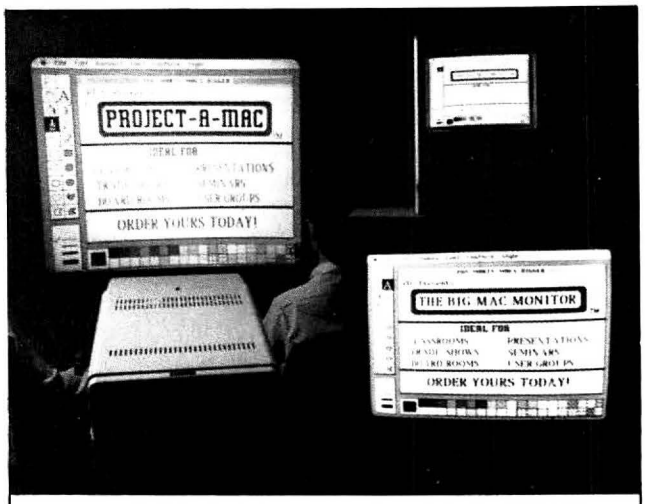
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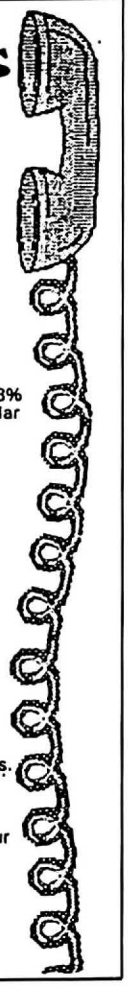
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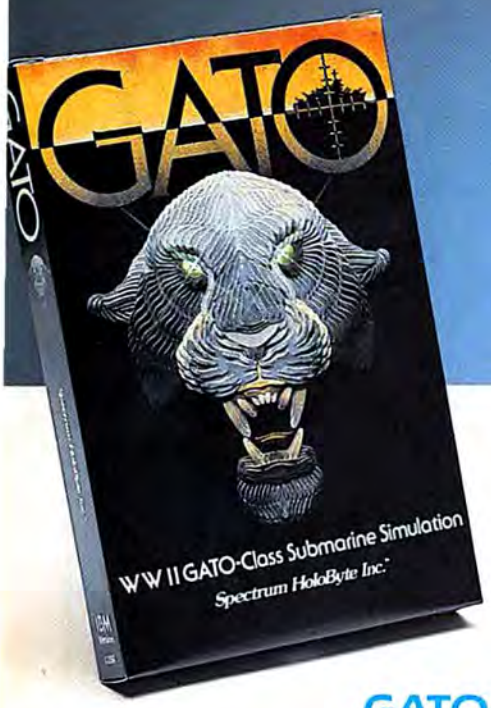
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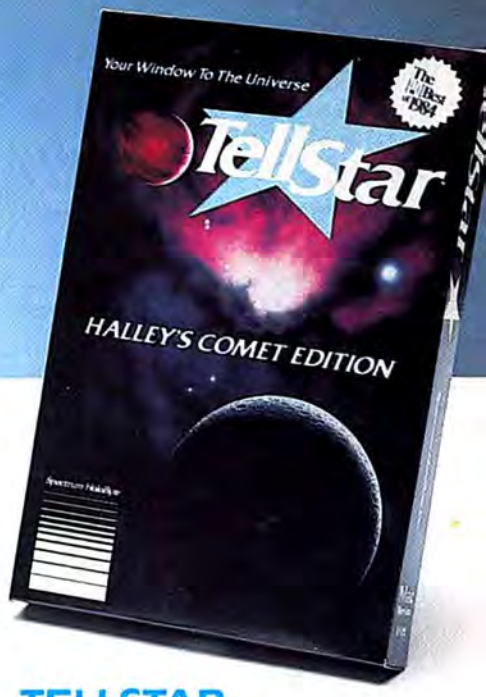
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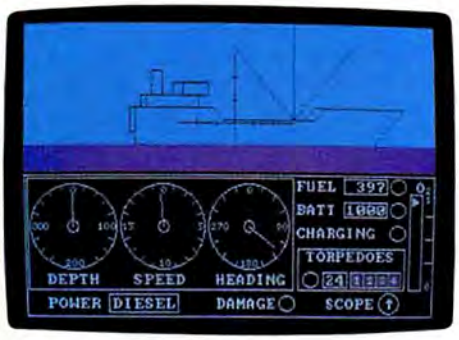
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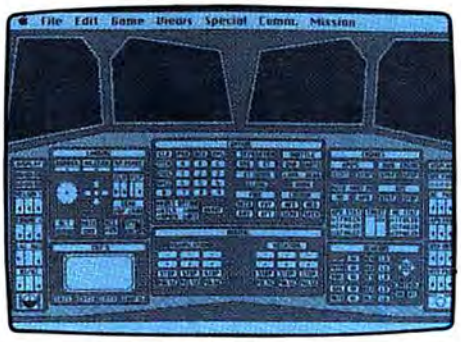
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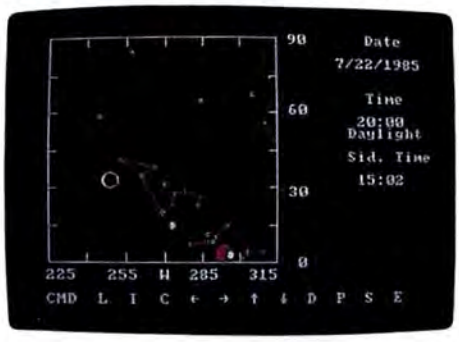
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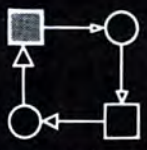
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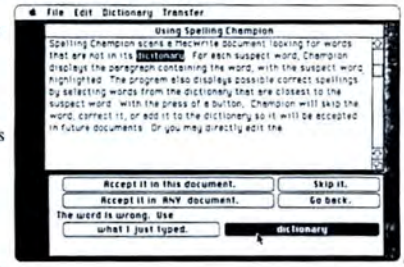
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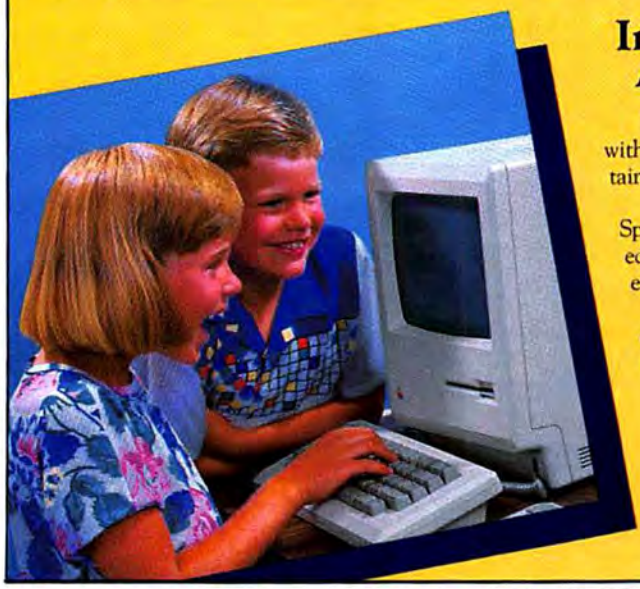
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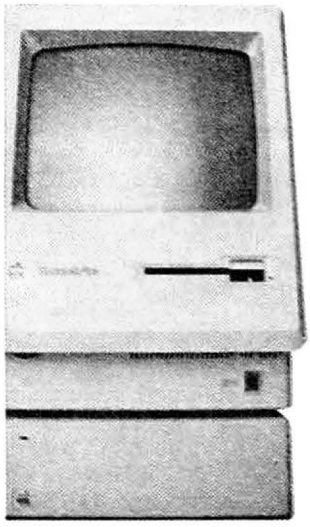
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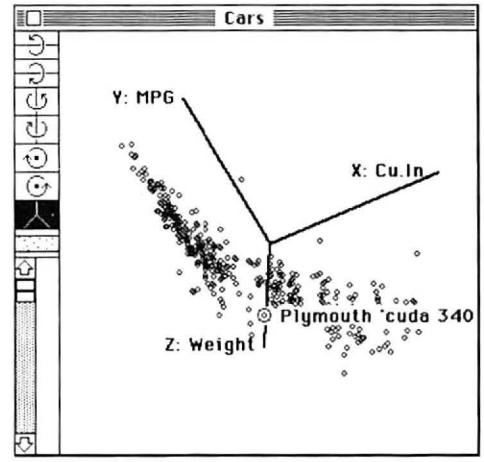
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by John C. Dvorak

THE LOST TRIBE REVEALED

The voice on the other end of the phone had a tinge of an accent. "Meet me — at zee old deserted train station at eleven. Come alone." The man claimed to be none-other than the famous Dr. E. Connie Lubintoon, noted cultural anthropologist. I had heard some unusual things about the man in recent years. He's said to have been bitten by an African jungle bug known as the Keo. A Keo-bite has no antidote. At best it causes insanity, at worst...well, he was still alive.

The last I heard of Dr. Lubintoon, he was in the jungles of West Africa. He was in a region of Nigeria that was very remote. He sent me a letter when he first arrived. The letter was an enthusiastic tirade about the lost Stone Age tribe he had discovered. The tribe was totally unknown in the anthropological circles.

Dr. Lubintoon was in anthro-heaven. It was the dream of a lifetime. He said he'd tell me the details as soon as he had completed the study. That was 5 years ago.

The train station had the faint glimmer of a lantern within. I tried to look in the window, but it was obscured by a solid coating of dirt and cobwebs. The side door was ajar. I called out before entering, in the event that he was crazy and had a gun. I felt I was in a hokey adventure game by it all. "Dr. Lubintoon, It's me, Dvorak."

A man, withered and too tan, wearing a pith-helmet came to the entrance. He smiled. "I'm glad that you came. Please, come in. Didn't you hear that I am crazy?" The man turned and walked towards a table. The lantern hung from a rope from the rafters.

"Are you?" I followed him. The man looked frail. He was not the E. Connie Lubintoon that I had known.

There was a long pause. He slowly turned. The lantern light illuminated his face. "Maybe, but I cannot prove otherwise. Nobody will listen to my story about the lost tribe. Nobody will believe me. Only if you can put some of this information in *MacUser* will I be accepted by my people."

"The lost tribe? Who are they?"

"The Gotus! The Gotus!" he shouted. Then he began a long story about the lost tribe. I listened.

"In the jungles of West Africa, Nigeria, in an area that lies between Okoto and Bornu, near the town of Kano, is an area called Re-Poot. The Gotus people live there in tiny huts, undisturbed as they have been for many, many centuries. The Gotus are actually two tribes. One, the Mak-Eee Tushes are the focus of my study. The other, the Eebee-Emma Peesees, were only seen at a distance. (Except for the one which was captured for my benefit. He called himself Lapo and later escaped.) The Eebee-Emma Peesees speak the same language and culturally seem to have the same rituals as the Mak-Eee Tushes. The only



differences which I could discern was in their physical appearance and religious habits. The Eebee-Emma Peesees wear a carrot-like root around their neck and shave their heads. They also worship different gods. Lapo continually called to his god Ay-Prom-Pitta. The Tushes worshipped a god named Phinder. This religious difference may account for the tribal split.

"I first discovered the Mak-Eee Tushes tribe of the Gotus people while I was completely lost in the jungle. The natives with whom I'd contracted to take me into this region ran off when the eerie high-pitched yodeling of the Gotus reverberated through the trees. At that time, I did not realize that the noise was that of the Gotus. It was later analyzed and revealed to be similar to sound of a 1200-baud modem! Direct data communication from person to person, I thought to myself. Could it be possible?

"I was alone for about a day before the Mak-Eee Tushes finally revealed themselves to me. They were curious about my fair skin and odd clothing. These are very shy people. They show either no emotion or incredible enthusiasm. They rock a lot when talking and show no interest in women. I was most fascinated by their body adornment. On their faces circles are tattooed around each eye with a thick band of dark across the nose. They also adorn their bodies with other symmetrical designs — each side identical except for the adult males who have a simple 1½ by 3 inch rectangle tattooed on their left side (where the breast pocket would be in a shirt). This was some sort of manhood symbol.

"Their language is actually quite simple. The speech pattern consists of a series of questions which may only be responded to with one of three answers — yes/no/maybe. It is quite logical. I found it easy to communicate with them.

"The tribes method of drawing art was very unique for a stone-aged tribe. All of the art is drawn on a square of bark. The pictures are drawn as a series of small squares. Each is left either blank or filled in. The picture is drawn in a linear way from the upper left corner to the upper right corner from top to bottom. It was raster graphics! The design which was most commonly drawn was a very detailed abstract. The meaning of which eluded me. I can most accurately describe it as identical to VLSI circuitry, though I realize this isn't possible.

"Balance seems to be a theme with this tribe — very symmetrical in all aspects of life. There are two of almost everything. The tribe uses no colors as everything is black or white. Most families have two children. It is very digital in orientation. Their religion, though, is quite complex. Their god Phinder is considered a flake — full of quirks and impossible to understand. This god is under constant attack by Ka-Rovd the tormenter. Their god is not all powerful, simply full of knowledge. Some say he is dull-witted — ambitious but dumb.

"My research led me to believe that understanding these lost tribesmen will help us better understand peculiarities of our society. It was when I discovered the secret book of Elppa in a hut controlled by the Sboj family that Ylluks turned me away and took the tome. My notes were confiscated and I discovered that I was about to be turned into the main course at tomorrow's banquet. All because I looked at the secret book. I had to escape and did so that night.

"Now I must return to my notes and try to reconstruct the rest of my tale. Meanwhile, Dvorak, tell them. Tell them about the lost tribe!"

Lubintoon disappeared into the night. I shook my head. I never heard a tale so silly.

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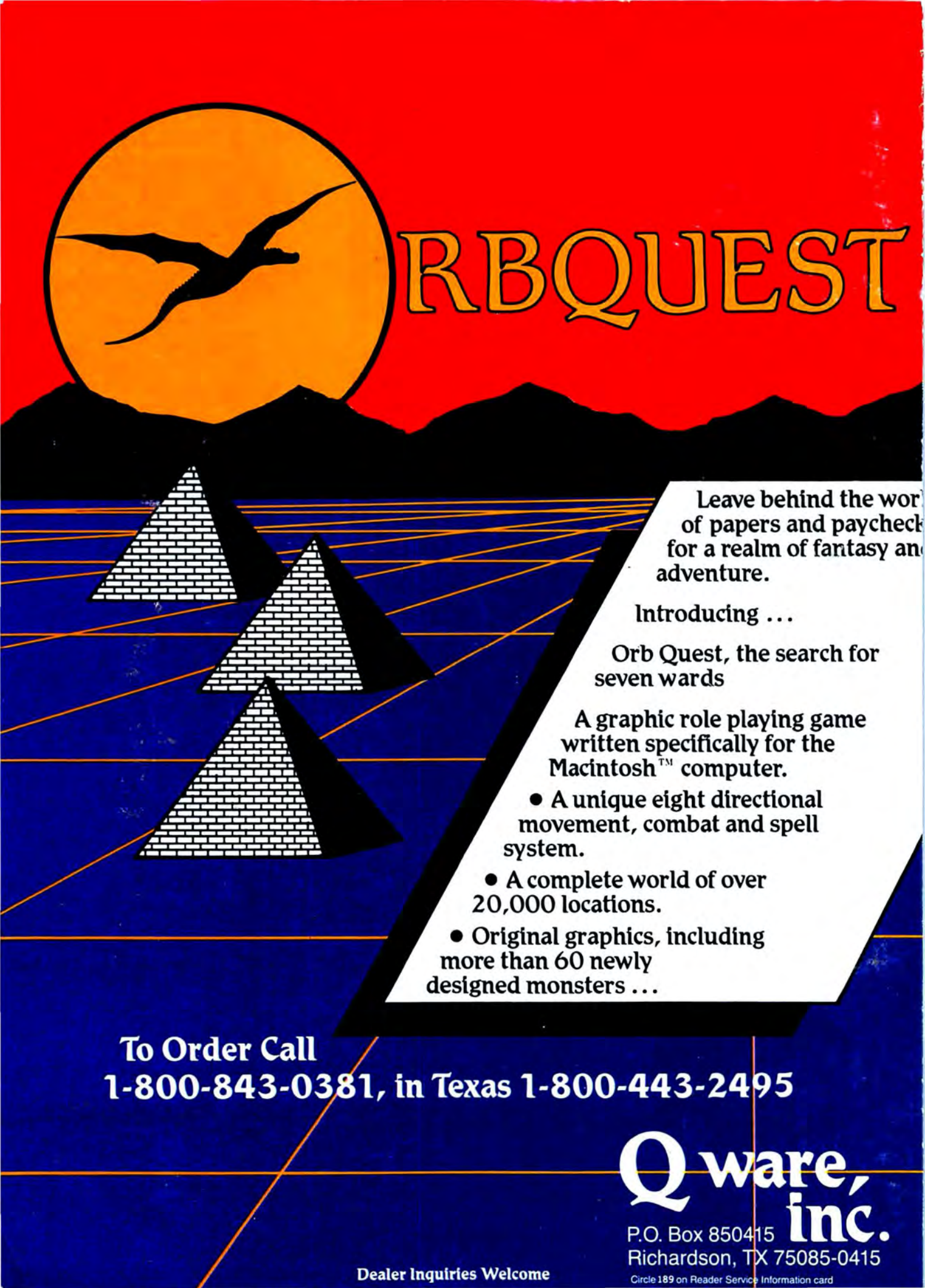
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